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FEDERAL GRANTS-IN-AID TO STATE GOVERNMENTS; A POLITICAL ANALYSIS

PHILLIP MONYPENNY *

THE federal system is always in danger and it is always rising anew from the ashes of its earlier existence. The current concern about the federal system, which has an obvious base in the party battle, is indicated by the number of reports and studies, non-partisan, if not non-political in character, which are concerned with it. Though these contribute a great deal of information about the current state of federal-state relations, it cannot be said that they settle any of the questions currently in dispute, in particular the question of whether the position and significance of the states as policy making centers has been significantly changed by the changing scope of the activity of the national government. Much of the discussion has centered on the expansion of federal grants-in-aid to the states and on the increasing scope of federal expenditure as opposed to state and local expenditure. It is to the scope and character of the grants system, and to its political conditions, that this paper is directed. Incident to this discussion there may be an opinion, if not a conclusion, as to the effect of the grant system on the policy making freedom of state government.

The increase in federal expenditure relative to the expenditure of state and local government is beyond question. From 1890 to 1940 federal expenditure increased 28 times, state expenditure increased 30 times, and local expenditure 13 times. Since state government started from so small a base, these proportions resulted in a federal expenditure greater than the total for state and local in 1940, whereas at the beginning it had been smaller. Since that time war has pushed federal expenditure into a new dimension whereas state and local expenditure together have had a considerable but less dramatic growth. The most striking change, however, is not the increase of federal relative to state and local expenditure, but the shifting balance between local and state. In 1890 state expenditures were a little less than one-seventh of all local government expenditure. Now they somewhat exceed it.

It is reasonable to conclude that the effect of federal grants upon state fi-

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nances, and thus indirectly on the scope of fiscal choice by state governments, can be seen most vividly by looking at the top and bottom group of states in terms of per capita income. On the average state governments receive about 17 per cent of their general revenue from federal aid, though the proportion varies considerably from state to state as we shall see. The ability of states to finance programs independently of federal aid would seem to be related to their taxable resources, and per capita personal income is here taken as a rough measure of this ability. After examining expenditure patterns among the top twelve and bottom twelve states on a per capita income basis, the political rather than the fiscal implications will be developed. No effort will be made to describe the individual grant programs.

Present Pattern of Grants-in-Aid

The general situation in which grants operate may be summarized briefly. The bulk of all state expenditure is for a few major objects: education, both higher education and state contributions to local school districts; highway construction and maintenance, including grants to local government units; public welfare, chiefly public assistance, sometimes administered on a grant basis by local units; and health and hospitals, of which the largest part is for mental hospitals. The largest federal grants, in order of size, are for public welfare—almost entirely for certain categories of public assistance—highway construction, education, and health and hospitals. Employment Security, which is a trust fund operation as far as benefits go, and whose administrative costs are entirely under federal control, is omitted from these and subsequent calculations. It might be noted that education grants include a minimum of funds for the general operation of schools at any level, and are a minute fraction of state and local expenditure in this field. Grants for health and welfare largely ignore the greatest object of state expenditure in this field—the construction and operation of mental hospitals.

The principal character of present grants, then, is that they are for particular kinds of activity and they do not support state expenditure in general, except in an indirect way. Nor are they designed systematically to support the major fields of expenditure. Finally, their impact is most uneven as between states of high and low per capita income, both in terms of the absolute amounts paid per capita and in terms of the proportion of all state expenditure represented by grant funds.

If states are ranked in the order of per capita grants from the federal treasury, as they are in Table I, the 12 with the largest grants include a number of states which are among the top 12 in per capita income. Nevada, which ranks fifth in income is second in federal aid received per capita, and California, third in per capita income, is eleventh in grants. The only really low income states in the group are North Dakota and Oklahoma.

Among the states receiving the lowest level of federal aid per capita we find two low income states: Virginia, 37th in income per capita, and South Carolina. However, eight of the remainder are definitely high income states.

These are somewhat inconsistent results. Some states presumptively well able to pay for their own activities receive large proportionate federal grants, and some states with low presumptive

ability to pay receive low proportionate federal grants. This paradox is built into the aid program. Nearly three-quarters of all federal grant-in-aid payments to state governments are for highway and public welfare grants, with health and hospital grants rounding out the full three-quarters.

with over 5 per cent of their area in public lands, proportionate to the amount in public lands. The interstate allocations are on a cost per mile basis for approved routes, not directly related to area or population. As the grant figures show, the amount and per cent of aid is unrelated to income, and probably

TABLE I

STATE PER CAPITA RECEIPTS FROM FEDERAL GRANTS-IN-AID

	Rank in per capita aid received	Per capita aid	Per capita state revenue for general purposes	Federal aid as per cent of revenue	Per capita personal income	Rank in per capita income	State revenue as per cent of state-local revenue
	A. Twelve States with Highest Per Capita Aid						
1	Wyoming	$121.44	$270.97	45%	$2,103	12	55.1%
2	Nevada	80.07	248.79	32	2,532	5	58.7
3	New Mexico	78.85	263.21	30	1,709	32	75.8
4	Oklahoma	51.25	181.69	28	1,660	34	67.9
5	Colorado	50.36	172.58	29	2,051	13	48.8
6	Montana	47.86	157.54	30	1,980	17	41.8
7	North Dakota ...	45.11	183.09	25	1,542	40	48.1
8	Arizona	44.47	170.93	26	1,892	24	58.5
9	South Dakota ...	43.27	136.80	32	1,720	31	37.3
10	Missouri	39.48	110.95	36	1,971	18	48.1
11	California	39.38	175.20	22	2,556	3	49.6
12	Oregon	37.63	167.40	22	1,953	20	55.6
	B. Twelve States with Lowest Per Capita Receipts from Federal Aid						
48	New Jersey	11.03	81.22	14	2,469	6	28.7
47	Virginia	13.51	96.36	14	1,642	37	62.7
46	Indiana	13.52	112.44	12	1,940	21	46.7
45	Pennsylvania ...	17.03	108.65	16	2,049	14	55.6
44	Maryland	17.96	119.40	15	2,169	9	54.8
43	Illinois	18.65	100.53	19	2,355	7	39.7
42	New York	18.82	120.72	16	2,538	4	38.9
41	Wisconsin	19.21	128.61	15	1,891	25	50.1
40	Connecticut	19.40	130.57	15	2,748	1	49.0
39	Ohio	21.42	109.00	20	2,124	11	48.1
38	Michigan	21.87	144.04	15	1,995	15	55.3
37	South Carolina ..	21.93	112.54	19	1,169	47	73.5

Sources: Expenditure data and receipts from federal grants from U. S. Bureau of the Census, *Compendium of State Government Finances in 1958*. Per capita personal income data from *Business Week*, March 28, 1959, p. 150.

In the highway field aid is unrelated to income. Roughly the factors of area, rural population, and urban population determine apportionments in the three older highway programs—statewide networks, farm to market roads, and urban extensions of state nets; and the matching requirements are cut for those states only roughly to need for highway mileage. This is the explanation of the grants to states like Nevada and Wyoming, which are not unprosperous though sparsely populated, and large in area, and in the proportion of land in the public domain.

In welfare, in which the largest sums

are distributed, the distributions depend on the size of the recipient group in the population, and on the level of payment. Obviously the number of persons in the population who receive aid is only remotely related to average per capita income. The high income eastern states have relatively low recipient rates, but some western states with high income levels have high rates. Although the federal proportion of low level payments to recipients is greater than it is of high level payments, the absolute sums granted per recipient are larger.

It is the coincidence of large highway grants and large public assistance loads that puts some well-to-do states high on the federal aid per capita list. It is a reverse conjunction which puts both high income and low income states low on that list. It is not unjustified to assume that both the size of the public assistance population and the level of grant have some relationship to state policy, so that state rather than federal policy partly determines the distribution of federal grants.

The picture is more striking if we consider not the top and bottom states in terms of aid received per capita but the top and bottom states in terms of per capita personal income, and the proportion of costs of highways and of welfare costs which are paid from federal funds. For the 12 highest per capita income states, toll road construction and maintenance excluded, the proportion of highway expenditure represented by highway grants from federal funds ranges from 16 per cent in Delaware to 51 per cent in Wyoming. Nevada has a ratio of 48 per cent. The median figure would be 23 per cent. For the group of states with the lowest per capita income the range is from 11 per cent to 44 per cent. The 44 per

TABLE II

RATIO OF FEDERAL GRANTS TO STATE EXPENDITURES FOR HIGHWAYS AND WELFARE IN TWELVE HIGHEST AND TWELVE LOWEST STATES IN PER CAPITA PERSONAL INCOME

A. High Income States				B. Low Income States			
	Rank in per capita personal income	Highways *	Welfare		Rank in per capita personal income	Highways	Welfare
1	Connecticut	18%	37%	48	Mississippi	32%	84%
2	Delaware	16	32	47	South Carolina	25	73
3	California	26	58	46	Arkansas	31	81
4	New York	30	53	45	Alabama	30	79
5	Nevada	48	60	44	North Carolina	23	86
6	New Jersey	21	47	43	Kentucky	18	73
7	Illinois	20	57	42	Tennessee	19	73
8	Massachusetts	17	60	41	Georgia	23	75
9	Maryland	28	60	40	North Dakota	44	55
10	Washington	25	41	39	West Virginia	17	77
11	Ohio	20	58	38	Louisiana	11	58
12	Wyoming	51	69	37	Virginia	17	71

Sources: U. S. Bureau of the Census, *Compendium of State Government Finances, 1958*. Per capita personal income data for 1958 from *Business Week*, March 28, 1959.

* All highway expenditure except toll roads. The exclusion of grants or shared tax payments to local governments for road purposes would raise the federal percentage considerably for most states.

cent figure is represented by North Dakota. The median figure for this group is also 23 per cent, but five states in the group receive less than 20 per cent of their costs, while only three of the top income group receive less than 20 per cent. If anything the lowest income states, which spend less in most cases than the more prosperous states on highways, receive less in federal aid on this score.

Welfare costs present a different story. It is a little difficult to get a satisfactory comparison on welfare costs from census data because the treatment of administrative costs varies from state to state depending on whether direct administration is vested in local units of government or in local offices of a state agency. Taking the census definition of welfare costs, however, one finds that for high income states grants identified as for welfare purposes range from 32 per cent of all welfare costs in Delaware to 69 per cent in Wyoming. The median figure is between 57 and 58 per cent. For the poorest group the range is from 53 per cent for North Dakota to 86 per cent for North Carolina. The median figure for the low income group is between 72 and 73 per cent.[1] There is a minimum of overlap between the two ranges although North Dakota and Louisiana are within the range of the highest income group. Five of the high income states have proportions of welfare costs paid equal to the lowest proportion of costs paid for the low income group of states.

The variance in the proportion of costs paid arises from several factors. Federal grants are almost entirely for categorical assistance. The proportion of categorical assistance costs to the whole of welfare expenditures as classified in census data varies considerably from state to state. Expenditures not included in the class—categorical assistance—include general assistance, in which there is no federal participation, services to individuals and families which do not include financial assistance, and the costs of operating welfare institutions other than hospitals. In some states most of the administrative costs are allocated to the public assistance table, but not in others as noted above.

Another factor influencing the proportion of costs paid is that the federal government pays a larger share of low average payments to individuals than of high average payments. Using the reports of the Department of Health, Education and Welfare rather than the census reports, the proportion of costs paid in the categorical programs is substantially less than that shown in the census figures. In fiscal 1958, the proportion of all old age assistance expenditures from federal funds varied from 36 per cent in Connecticut to 66 per cent in Delaware, for the high income group of states. In the same group of states for aid to dependent children, the lowest proportion was 46 per cent of the costs in New Jersey, the highest 70 per cent in Delaware. In the low income group of states, the variations in proportion of costs paid for old age assistance were from 47 per cent in North Dakota to 78 per cent in Mississippi. The variation for aid to dependent children in this group of states

[1] The proportion of welfare funds paid from federal grants is exaggerated in Bureau of the Census reports. Grants for medical costs paid by public agencies on behalf of assistance recipients (vendor payments) are included in the Census figure of grants in aid for welfare purposes. Payments by the states for this purpose are credited, in the same reports, to health and hospital, not welfare expenditure. Thus either welfare grants are exaggerated, or welfare expenditures are minimized.

TABLE III

TWELVE STATES HIGHEST AND TWELVE STATES LOWEST IN PER CAPITA INCOME RANKED IN ORDER OF PER CAPITA EXPENDITURE FOR HIGHWAYS, EDUCATION, PUBLIC WELFARE, HEALTH AND HOSPITALS

Per capita expenditure for highways		Per capita expenditure for education		Per capita expenditure for public welfare		Per capita expenditure for health and hospitals	
Wyoming	$125.61	Delaware	$123.96	*Louisiana*	$47.50	Connecticut	$22.73
Connecticut	112.13	Washington	76.93	Washington	35.31	New York	22.55
Nevada	96.68	California	71.07	California	25.63	Massachusetts	22.49
Delaware	70.41	*Louisiana*	69.74	*Arkansas*	22.29	Delaware	20.25
North Dakota	63.30	Wyoming	66.48	Massachusetts	21.88	Washington	17.12
Maryland	50.67	Nevada	58.77	*Georgia*	21.58	Maryland	16.07
Louisiana	50.08	*North Carolina*	51.80	*Alabama*	21.18	Illinois	14.43
Illinois	49.07	*Georgia*	48.04	*Mississippi*	20.27	*Louisiana*	14.32
Washington	48.15	*South Carolina*	45.01	Connecticut	18.43	Wyoming	12.76
Virginia	46.72	*West Virginia*	43.74				
Ohio	46.14			National average	17.40	National average	12.69
		National average	43.22				
National average	39.38			*Kentucky*	17.29	*Virginia*	12.47
		Alabama	42.75	*West Virginia*	17.13	California	12.16
California	38.88	*Mississippi*	41.55	Delaware	16.50	Ohio	11.37
Massachusetts	35.81	New York	40.91	*North Dakota*	15.91	*North Dakota*	10.97
Kentucky	34.40	*Arkansas*	40.07	*Tennessee*	14.88	*Arkansas*	10.12
Tennessee	33.89	*North Dakota*	39.12	Illinois	14.39	New Jersey	9.27
Mississippi	32.83	*Tennessee*	36.85	Nevada	13.80	Nevada	8.51
Arkansas	31.59	Connecticut	34.39	Wyoming	13.54	*North Carolina*	8.50
North Carolina	30.80	*Virginia*	33.28	New York	13.43	*Georgia*	8.48
Alabama	30.62	Maryland	32.20	Ohio	13.42	*Mississippi*	8.01
Georgia	29.72	*Kentucky*	30.85	*South Carolina*	12.47	*South Carolina*	7.68
New York	28.72	Ohio	27.06	*North Carolina*	10.97	*Tennessee*	7.40
West Virginia	28.64	Illinois	24.82	New Jersey	7.49	*Alabama*	7.01
South Carolina	26.50	New Jersey	22.62	Maryland	7.41	*West Virginia*	6.61
New Jersey	20.51	Massachusetts	17.78	*Virginia*	5.39	*Kentucky*	5.95

Sources: U. S. Bureau of the Census, *Compendium of State Government Finances, 1958*. Income ranking based upon *Business Week*, March 28, 1959, p. 158.

The twelve states lowest in per capita income are *italicized*.

was from 53 per cent (North Dakota) to 79 per cent, (Arkansas, West Virginia, Alabama).

There are several factors influencing the per cent of welfare costs met from federal funds as between wealthy and less wealthy states. The former have more extensive welfare services other than financial assistance. They have more extensive general assistance programs which cover those not eligible for categorical assistance. In the period taken, December, 1958, most industrial states had a heavy general assistance load. Of the low income states only Louisiana had a considerable number of recipients of general assistance and paid them allowances comparable to those paid in the categorical programs. Finally the level of assistance tends to be lower in low income than high income states, though the variation in each group is considerable. In 1958 Mississippi had the lowest level of average monthly payments to old age assistance recipients—$29.54—and one of the highest ratios of recipients to population over 65—453 out of 1000 persons. The highest level of payment in the low income group was in North Dakota —$84.50—but the recipient level was low—137 per 1000 persons over 65. Aid to dependent children for the low income group of states showed wider variation. The lowest payment was in Alabama, $7.04 per recipient per month, and the rate of recipients was relatively high, 55 per 100,000 population under 18. The highest average payment was again in North Dakota, $38.56, with a recipient rate of 19. In the twelve states highest in per capita income, payments for old age assistance ranged from $101.05 in New York, with a recipient rate of 57 per 1000 persons over 65, to a low of $49.54 in Maryland, with a recipient rate of 49.

In aid to dependent children there was a similar range. The highest rate of payment was $48.07 per recipient in Connecticut, with a rate of 21 recipients per 100,000 population, to a low of $29.29 per recipient per month in Ohio and a recipient rate of 21.

While recipients rates tend to be higher in the low income states, this is not necessarily the case. The national average for old age assistance is 159 persons per 1000 population over 65, and Louisiana has over three times this figure with 577 persons. Louisiana is by no means the poorest state in terms of per capita income. Kentucky and Tennessee have just over 200 persons per 1000 in the age group. North Dakota has less than the average, 137, West Virginia considerably less, 125, while the rate for Virginia, considering the low per capita income reported for that state, is unbelievable, 59. For the high income states, Colorado with 337 recipients per 1000 persons over 65 exceeds the rate for most low income states, and California, Washington and Nevada have over 200 recipients per 1000. Illinois, Connecticut, New York, Maryland, Delaware and New Jersey have much less than the national average. The dependent children program also varies within each group and between them. West Virginia has the highest rate of the low income group and the highest in the country—81 per 100,000 children under 18. It is one of the few states in which expenditures for this program exceed expenditures for old age assistance. Eight states in the low income group exceed the national average, though none has as much as twice the national average, except West Virginia. In the

high income states, the highest ratios of recipients to population are in California and New York, each with 37. The lowest is New Jersey with 13. Only California and New York exceed the national average. Within each group, high income and low income, the relative ranking in number of recipients has little relation to relative income.

Applying this information to the distribution of federal aid for public assistance, it is obvious why per capita grants and the proportion of costs vary from state to state. Roughly speaking one might expect the highest per capita grants for welfare purposes in those states with the largest populations receiving welfare payments, since federal aid is open ended—that is, the federal government pays a portion of costs per case, not a fixed allotment. However, this is offset by another factor. The federal government pays a large propor-

TABLE IV

WELFARE EXPENDITURES OF HIGH AND LOW INCOME STATES

Rank per capita income	Old age assistance			Aid to dependent children			General assistance	
	Average monthly payment	Recipient rate per 1000 persons over 65	Per cent of costs from federal grants	Average monthly payment per recipient	Recipient rate per 100,000 persons under 18	Per cent of costs from federal funds	Average monthly payment per case	Recipient rate 1000 per persons over 65
48 Mississippi	$ 30	453	78.2%	$11	58	78.5%	$15	.6%
47 South Carolina	38	233	72.7	14	29	79.4	22	1.1
46 Arkansas	48	294	69.0	16	34	79.0	13	.7
45 Alabama	49	417	70.8	7	55	79.4	13	**
44 North Carolina	40	173	73.4	19	43	78.3	21	1.8
43 Kentucky	44	207	72.4	20	48	76.2	37	3.1
42 Tennessee	44	202	72.1	19	45	77.5	15	2.5
41 Georgia	48	361	69.8	24	30	73.1	23	2.0
40 North Dakota	85	137	47.4	39	19	53.4	58	4.4
39 West Virginia	36	125	75.1	24	81	72.9	33	3.1
38 Louisiana	67	577	58.6	22	59	72.2	48	3.8
37 Virginia	40	59	70.4	19	20	75.9	38	**
National average	65	159		28	34		69	8.2
1 Connecticut	108	70	35.8	48	21	46.5	76	8.2
2 Delaware	50	47	64.5	23	29	69.8	62	10.4
3 California	84	221	47.6	45	37	46.4	55	5.7
4 New York	101	57	40.5	43	37	50.1	96	8.7
5 Nevada	69	201	55.0	27	23	64.8	**	**
6 New Jersey	84	39	47.9	44	13	45.9	96	7.4
7 Illinois	69	86	52.5	38	31	54.1	84	13.3
8 Massachusetts	97	162	40.9	46	23	45.9	72	5.5
9 Maryland	57	49	59.5	27	23	65.3	62	1.8
10 Washington	89	212	43.4	45	31	47.3	75	14.6
11 Ohio	67	107	57.5	29	20	68.7	79	16.6
12 Wyoming	72	144	54.8	37	15	53.5	65	8.2

Payments to recipients to nearest dollar. General assistance cases may include more than one person.

Sources: Average monthly payments and recipient rates from U. S. Department of Health, Education, and Welfare, *Social Security Bulletin*, April, 1959 (vol. 24, no. 4), pp. 32–33. Recipient rates are for December, 1958; payments for January, 1959. Proportion of costs paid are for fiscal 1958. Department of Health, Education, and Welfare, *Annual Report*, 1958, pp. 78–79.

tion of low level payments, but it sets no floor. Thus, since the 1958 amendments, the federal government pays three-quarters of the first $30 of average payments to individuals receiving old age assistance, and $14 of the first $17 of average payments for each person receiving aid for dependent children. It shares the remainder of these payments on a sliding scale up to a maximum payment per recipient of $60 for the aged and $30 for children. The federal participation at various levels of payment can be seen in the following table.

It is clear that federal participation varies with the general level of payments, and that that is one explanation for the variation between states in the proportionate share of welfare expenditure covered by federal grants. Thus, Ohio, which ranks eleventh in per capita income, but which has a lower level of payments to both old age recipients and dependent children than other states in its income group has a higher proportion of costs paid by federal grants. The high income states with the largest proportion of welfare costs covered by federal grants are Maryland and Delaware, both of which have aid levels well under the rest of their class. Among the low income states, North Carolina, Mississippi, and Alabama, for aid to dependent children only, rank low in average monthly payments in aided persons and

TABLE V

PER CENT OF FEDERAL PARTICIPATION IN OLD AGE ASSISTANCE AND AID TO DEPENDENT CHILDREN PAYMENTS OF VARIOUS AMOUNTS

A. Old Age Assistance

Average monthly amount per recipient	Per cent paid from federal funds	Amount of federal contribution
$ 30.00	80%	$24.00
40.00	73–76	29.00–$30.50
50.00	68–74	34.00– 37.00
60.00	65–73	39.00– 43.50
65.00	63–72	41.50– 46.75
100.00	42–47	41.50– 46.75

Lowest average monthly payment per recipient, January, 1958—$29.54 (Mississippi).
Federal grant per person, based on aid formula —$23.62.
Highest average monthly payment, January, 1958—$105.00 (New York).
Federal grant per person, based on aid formula —$41.50.

B. Aid to Dependent Children

Average monthly amount per recipient	Per cent paid from federal funds	Amount of federal contribution
$17.00	82%	$14.00
20.00	78–80	15.50–$15.95
25.00	72–77	18.00– 19.20
30.00	68–75	20.50– 22.45
45.00	46–50	20.50– 22.45

Lowest average monthly payment, January, 1958—$7.04 (Alabama).
Federal grant per recipient based on aid formula—$5.77.
Average payment per recipient, U. S.—$28.35.
Federal grant per recipient based on aid formula—$19.67–$21.37.
Highest payment per recipient—$48.07 (Connecticut).
Federal grant per recipient based on aid formula—$20.50.

Source: Department of Health, Education, and Welfare, *Social Security Bulletin*, vol. 24, no. 4 (April, 1959), Table 10, p. 33.

For old age assistance, federal participation is three-quarters of the average monthly payment per recipient up to the first $30, and 50 to 65 per cent of the remainder of the payment, up to a maximum payment per recipient of $60 there is no federal participation. For aid to dependent children, federal participation is $14 out of the first $17 per recipient, and from 50 to 65 per cent of the balance, up to a maximum payment per recipient of $30. There is no federal participation on the balance over $30.

high in proportion of categorical assistance costs from federal funds.

So far, the welfare grants might seem to conform to the rationale of more aid to low income states. However, a glance at the level of payments will show that despite a smaller percentage of costs paid, the federal contribution is larger per recipient for the higher income states than for the lower. Assuming that Alabama received the highest possible matching grant because of its low per capita income, federal contributions to Alabama in December of 1958 should have been $5.77 on the average out of the average monthly payment of $7.04 for each dependent child. The average payment in the U.S. for dependent children was $28.35 per recipient. The federal share of this sum would be a little more or less than $20, depending on whether the high or low matching ratio was used. Thus, children receiving aid in Alabama received about one third of the average payment made in the United States per child by the federal government. The highest monthly payment was in Connecticut—$48.07. The federal share of this would have been $20.50 per recipient—three times its contribution in Alabama.

If the grants for public assistance are computed on a per capita rather than on a per recipient basis, there is no such inversion of the order of assistance. Since the more prosperous states, with one or two exceptions, have much smaller bodies of recipients proportionate to population, the larger sums received by these recipients are averaged over a larger total population. Thus per capita of 1957 population, the spread for the low income states is from $1.39 per capita (Virginia) for old age assistance to $18.67 (Louisiana). The middle ranges are $5.45 and $5.80 (North Dakota and Tennessee respectively). The correspondence between income per capita and grants per capita is far from perfect within the group. But the range is distinctly different from that of high income states. For these states the range is from $9.77 per capita for old age assistance (Washington) to $1.33 (Maryland). The middle of the range is marked by per capita amounts of $4.19 (Illinois) and $4.93 (Ohio). The dependent children grants per capita vary similarly—$1.72 for Virginia to $7.73 for West Virginia with a mid point between $3.19 (Mississippi) and $3.30 (Georgia). For the high income states the range is from $4.47 (California) to $1.15 (New Jersey). Thus there is a rough discrimination between high and low income states in per capita grants for public assistance, but not a complete separation.

It is apparent from the examination of welfare and highway grants that the present system of aid does not result in the states with the greatest burdens or the least financial capacity getting aid which is larger than that given wealthier states. It is also apparent that the lure of federal money, which is particularly great in the public assistance programs, has not produced any uniformity in the level of expenditure for this purpose. There are great variations among states in apparently comparable conditions as to the number of persons aided in given age groups, and despite the large federal participation in lower level grants, there is little uniformity among states with comparable per capita personal income in the level of assistance extended to the needy. In other words despite the availability of grants under uniform conditions states are making quite dif-

ferent decisions as to how to spend their money, and how much money to raise and spend.

If the review of state expenditure is extended to other than aided fields, the variation in state decisions as to the allocation of fiscal resources becomes even more apparent. Although the comparison is imperfect because local expenditures for the purposes listed have been left out of account, the variation from state to state in the level of expenditure for various purposes is striking. There are rough differences which separate the top 12 states in income, and the bottom 12, but they are not completely consistent. As a group the wealthiest states spend somewhat less per capita on public welfare than the poorest, and less on education. Since education carries minimum federal aid, the preference of the poorer states for expenditure on education rather than other purposes is particularly striking. A few more dollars on old age assistance would bring them a disproportionate gain in the amounts distributed to the aged, but education expenditure is kept at a high level instead. The poorer states spend less for highway purposes, another field in which the lure of federal aid is presumably strong, and very noticeably less on health and hospitals. The exceptions only show that the presumably controlling conditions do not prevent individual choice. Virginia, among the low income states, had low expenditures in all fields listed except highways. Among the high income states, California and Washington have high per capita state welfare expenditures, both because of high levels of assistance to the needy, and because of large load, particularly for the aged. North Dakota spends substantially on its highway system, though it is a poor state as measured by per capita personal income. In the health and hospital field, the poor states are most distinctly different from the wealthier, and in each group, per capita income and rank in health and hospital expenditure tend to run closely together.

Justification of Grants-in-Aid Pattern

The picture presented, both in terms of the distribution of aid among the states, and the apparently arbitrary selection of purposes for which aid is extended do not square very well with the textbook justifications for a grant-in-aid system. The classic case for the extension of financial assistance by one government to another is that it provides money for local units which need it in order to support essential activities at a minimum level. This implies a larger measure of support for some units than for others, depending on the relative ability of units to finance the programs supported. No *major* federal grant is based primarily on an equalization factor, and those which include such a factor do not begin to produce a uniform level of service. Only the small grants administered by the Children's Bureau for welfare services for children and for maternal and child health have a prescribed income factor built into the formulas for both allocation and matching. Of the larger grants, only those for hospital construction base allocations and matching formulas on need in relation to per capita income. In the public assistance and unemployment compensation fields the federal programs do not even assure assistance to all persons who need it, since provisions for interstate migrants and persons unable to establish state residence is left entirely to state law.

If federal aid does not have a fiscal

base, as an equalizing measure, we must look elsewhere for its justification. Perhaps the most comprehensive justification of the federal grant system would be that it provides a measure of service which national interest requires without complete federal assumption of the function. Every grant, from the construction of wildlife refuges to the piddling expenditures for civil defense, serves some purpose which its defenders regard as properly national. The only difficulty is that the attributes of matters of national concern are by no means obvious. Is wildlife conservation, other than on the federal public domain, a national problem? In legal theory wild game are the property of individual states, and there is no constitutional basis for national action other than by treaty or expenditure. The provision of health services, excepting the direct care of federal dependents and the protective measures which must be taken through the interstate and foreign commerce powers, is traditionally a state function. Why is vocational training a matter of national concern, when education in general, despite recent legislation, is not?

The stimulation of state and local activity in fields of national interest is often cited as a proper basis of federal aid. Apart from civil defense, in which national expenditure is minute, there are no grant fields which had not developed prior to the grants as activities of state governments under their inherent powers. This is true of higher education, of the agricultural and home economics extension service, of orthopedic care for crippled children, of state financing of highway construction, of unemployment compensation, or whatever. It is true that federal aid may have been a factor in persuading the less ready states to undertake what had already been undertaken elsewhere. It is hard to make a case for federal aid as a pioneering measure.

Finally, the difficulties which state and local governments face in raising revenue is often urged as a basis for increased federal assistance. The enormously wide variations in the ratio of resources to populations among the states makes this absurd if it requires aid to all states on a uniform basis. Admitting the greater difficulty of tapping wealth in a smaller area than a large one, in dealing with a national system of production and distribution, most of the difficulties of the states in raising revenue are self-imposed. The states increased revenue drastically in the middle of the depression, at a time when it would seem to have been economic folly to raise taxes, and expanded their own scale of operations equally drastically. If a tax on real estate remains the prime resource of local governments to support their ever more expensive functions, this is the doing of the states, not of the federal government. Those cities whose fiscal difficulties are most prominently displayed house the greatest concentrations of wealth.

The claim of greater administrative competence on the part of federal authorities may be viewed with some scepticism. Wisconsin supplied key members of the federal staff in the early days of employment security, and the states have contributed a considerable contingent of public health officers to the U.S. Public Health Service. It is true that the federal service escapes some of the impediments which hamper administrators of state programs. They are freer of the fear of political reprisals from minor political figures, and they are able to handle the recruitment and

assignment of personnel with far less concern about the patronage obligations of executive and legislative leaders. On the other hand the introduction of federal aid administration imposes another administrative and legislative layer, and to that extent dilutes responsibility, slows action, and increases the necessity of documentation. A great many states could probably build highways just as well without the oversight of the Bureau of Public Roads, and administer unemployment compensation and the public employment services without the watchful eye of the Bureau of Employment Security.

Nevertheless, federal aid is here to stay and it is not likely to become any more consistent from one program to another. The balance of federal to state authority, which varies from one program to another, is not likely to shift very much.

The standard explanation of taxpayers' organizations for the federal aid programs is that they represent the triumph of expenditure without responsibility. There is an element of truth in that, but it is not the whole story. It is obvious that many states choose to spend less than others in the very fields in which federal aid pays the highest bonuses for state expenditure. A dollar raised from taxes is still a dollar, whether it brings additional money in federal grants or not. The pressure against the tax is just as heavy by those who have no interest in the expenditure. Obviously, too, Congress has not escaped the need to tax to support these programs, and what its members stand to gain by satisfying demands for larger grants they lose by imposing taxes. The increase in state tax revenues has been dramatic, and it has been incurred to meet increasing state responsibilities in the very fields in which federal aid has been least available—public education, mental hospitals, and, in the wealthier states, general assistance.

Nor is there much evidence that federal aid causes costs to be incurred for certain purposes despite a lack of interest in them by people in the state. In many of the fields where state expenditure is relatively low, among which children's health and welfare services are striking, federal grants have been unsuccessful in luring increased expenditure. Where there is local support for the activity as in highways and vocational education, expenditures in many states are far larger than the minimum that would be required just to match federal allotments. On the other hand in the fields in which excessive expenditure is alleged to be created by federal aid, public assistance, especially for the aged, there is the strongest local support for large expenditure, and the state programs long preceded federal grants.

It is unlikely therefore that the prospect of free expenditure by the states, without the assumption of concomitant tax obligation is the chief root of the grants system. What is then the root of this apparently contradictory phenomenon of patchwork assistance to states in which each field of activity has its own basis for granting money and its own set of administrative requirements, varying from very stringent, to very undemanding? It must be sought in the political system of the United States itself, which refuses to conform to the nice legal distinctions of a federal system, or to the logical consistencies of the advocates of executive responsibility and responsible party government.

That system has been adequately sketched in other places and by more skillful hands than those which shape these paragraphs. The population of the United States is divided by loyalties to a thousand different causes. People look to the complex fabric of government for means to pursue these causes, acting at points which are responsive, whatever the formal jurisdiction of the officials who respond. Groups within the population use their influence in one part of the fabric to negate the influence of their opponents at other points, to impose controls, or to escape them. The population acts through political parties and outside of them; it divides in elections for office, and recombines in pursuit of more particular goals. It uses the weapons of numbers, or of status, of publicity, or of intensity of organization, of money, or of familial and personal connection, as they are appropriate.

For such a population the federal grant-in-aid is a made-to-order device for securing unity of action without sacrificing the cohesiveness which is necessary for political success. The great obstacle to effective political action in a country such as the United States is the particularity of the ends of a great part of the politically active public. There are political organizations which will gladly lose national elections if they can keep their hold on local office, and followers of a national leader who are indifferent to the local office base of the party leadership whom they wish to enlist in their campaign. There are local labor organizations which will sacrifice any doctrinal commitment which their parent organizations may have if they can maintain their jurisdiction over jobs which members hold in public employment or in the work under government contract. There are wheat farmers who see farm programs in terms of wheat, and growers of perishable commodities who are more interested in the financing of production and distribution and in cooperative marketing than they are in price supports. Specifity of aim limits the possibility of getting sufficient support to outweigh opposition. Commitment to a political party as a means of political action is not binding enough to make parties a means of achieving unity of program.

Action through a single government, whether it be state, nation, or local unit, obviously requires some specificity of aim. Legislation must be drafted so as to embody with some precision the aims of those who promote it. Once drafted it is apt to estrange some of those who were linked in the coalition when it had only partially defined aims. Once drafted, the legislation also defines the opposition, which before lacked a firm base of coalition. The course of legislation may unite persons of very different views because of what they dislike.

The situation changes at once when it is proposed to act through grants to another governmental unit rather than by direct action. By state grants to local units, as in the field of education, a minimum state program is assured, but wide room may be left for differences of local emphasis. The obstacle to the realization of educational goals which lies in local tax limits is the common problem of persons with very divergent educational goals. They can unite to escape this common problem without reconciling their divergences on program.

If this is so in the states, where there is an extensive legal power of regulating the policy, as well as the structure and finance of local units, it is the more so

in the federal government. The fiscal power of the federal government can be invoked without bringing to play its policy making powers, except for that minimum on which those desiring the fiscal assistance can agree. This does not imply that those who support federal financial assistance escape the problem of levying taxes to support the expenditure they sponsor. At the federal level, however, they can both spend and tax; at the state level claims on fiscal resources are less successful. It is possible to get unemployment compensation on a virtually national basis without battling to the wall every combination of employers determined to pay for no more than a minimum program, and yet get a more extensive program in those states where there is support for it. It is possible to get the semblance of a national highway program while still enabling each state to decide whether it will support a more extensive or an intensive program of highway construction; to have many miles of roads to a less high standard, or fewer to a higher. It is notable that in approving the interstate system, which is built with 90 per cent federal money, and very extensive federal controls over routes and design, Congress attempted to box in the Bureau of Public Roads with requirements of Congressional approval of specific administrative decisions not present in earlier highway legislation.

It can be asserted therefore that politically speaking, federal aid programs are an outcome of a loose coalition which resorts to a mixed federal state program because it is not strong enough in individual states to secure its program, and because it is not united enough to be able to achieve a wholly federal program against the opposition which a specific program would engender. In this connection the uneven responsiveness of governmental units to various population segments undoubtedly plays a part in the resort to federal or to state action, or to a combination of both. Mayors expect Congress to support housing programs which do not get sympathetic attention in state legislatures. Water, wildlife, forest, and soil conservationsits generally look to Washington rather than to the states. Characteristically taxpayers federations concentrate their attention on state governments, and resist the transfer of questions from that arena to another in which they have less confidence.

Viewed in this light, the grant-in-aid programs make sense. Each is the product of a specific coalition and the terms of that coalition are evident in the statute and in the administrative practices which result from it. Hospital administrators, medical associations, and state public health authorities are built into the advisory committees of the Hospital Construction Act, and private non-profit hospitals, sectarian or not, may receive the same assistance that hospitals operated by public authorities receive. Nor is there a desegregation requirement in this act; adequate provision for people of all races and faiths must be made in the area, not necessarily in the aided hospital. There is no clash of federal and state authority in the movement for such legislation. There are only points of agreement which are embodied in statutes and points of difference which are left to negotiation, under the protection of the representative devices noted above.

The conditions under which grant-in-aid legislation is drafted limit the possibility that national uniformity will be imposed through the exercise of federal

supervisory powers, extensive as these are. The opponents of a given federal action may lose out because they are not quite as powerful in Congress or in the federal executive as they are in the state legislature or in the governor's office. They are never without some influence in Congress, if only through their own state Congressional representative. This severely limits the freedom of action of those who administer an aid program after its authorization. The act itself indicates the precise balance which exists between support and opposition for certain objectives. To attempt to secure administratively aims not authorized in the statute is to incur increased opposition without being able to secure additional support to offset it. Actually, in most programs, the tendencies of federal and state government run parallel rather than in opposition, though they may move at different rates. Increased family responsibility has been embodied in federal as well as in state legislation in the public assistance programs; the goals of rehabilitation rather than indefinitely prolonged public support have been written into the laws of both jurisdictions; the blind and the disabled are looked on with more tolerance by both state and federal legislatures.

The grant-in-aid system is by no means an undermining of federalism, but rather a refinement of it. It corresponds to a pragmatic pluralism, which has long been remarked as a characteristic of politics in the United States. It has built into it the characteristically different policy tendencies of states and of the national government. It is scarcely a means of enforcing similarity between them. Although direct administration by either government would have the advantage of political and administrative clarity and consistency, the choice of federal aid schemes as an alternative to either is sufficient evidence that these simpler measures were not a practical means for the attainment of political objectives whose achievement was only possible if they were not too minutely specified.

CORPORATE-INCOME TAX SHIFTING AND FISCAL POLICY

EUGENE R. SCHLESINGER *

WHILE the field of tax shifting has continued to yield some ingenious and highly refined theoretical constructions, recent discussions in the public and academic arenas point up the fact that a significant portion of the work in this field has not been particularly helpful in assisting government and business in making economic forecasts or formulating policies. The gulf between theory and useful application and interpretation has probably been widest in the case of the corporate-income tax, which, because of its importance as a revenue producer and of the significant differences of opinion which exist with regard to its shiftability, has received the lion's share of analytical attention in recent years. It is the objective of the present paper to make a modest contribution towards bridging this gulf by building up a workable analytical framework which can be applied to studying problems of corporate-income tax shifting within the relatively specialized area of fiscal policy for economic growth and stability. The method of approach utilized tries, insofar as is possible, to follow forms which are conducive to quantification.

I

From the standpoint of fiscal-policy problems which arise in connection with the stability of spending, it is the short-run price effects of taxes which are important. By making limited comparisons with a previously existing situation in terms of prices and subsequently relating these measured differences to different income groups on the basis of known consumption patterns, it is possible to obtain a useful picture of the distribution of the tax burden,[1] which can, with appropriate modifications, be used in making fiscal-policy forecasts. Moreover, since no comparisons whatsoever are made in terms of output, the method also offers the dual advantage of enabling one to make use of the vast amount of institutional analysis and quantification which has been done with pricing policies and of avoiding, at the same time, the thorny problem of obtaining empirical measurements of the price and income elasticities of demand and the price elasticities of supply in various industries.

The essence of analysis of this kind is that the short-run prices charged to the

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[1] The two best known studies of the distribution of the postwar tax burden are those made by Musgrave for 1948 and 1954. See R. A. Musgrave, J. J. Carrol, L. O. Cook, and L. Frane, "Distribution of Tax Payments by Income Groups: A Case Study for 1948," *National Tax Journal*, IV (March, 1951), pp. 1-43; and Richard A. Musgrave, "Incidence of the Tax Structure and Its Effects on Consumption," Joint Committee on the Economic Report, 84th Congress, 1st Session, *Federal Tax Policy for Economic Growth and Stability, Papers Submitted by Panelists Appearing before the Subcommittee on Tax Policy* (Washington: Government Printing Office, November, 1955), pp. 96-113. In this connection, see also Eugene R. Schlesinger, "The Statistical Allocation of Taxes and Expenditures in 1938/39 and 1946/47," Appendix to Chapter VIII in *Fiscal Policies and the American Economy*, K. E. Poole, ed. (New York: Prentice-Hall, 1951), pp. 410-20.

consumer are, as a result of conscious pricing policies, higher than they would be in the absence of a tax. In the particular case of the corporate-income tax, the qualitative aspects of the shifting problems involved are broadly similar to those involved in any other type of business tax. The same two questions must be answered in order to determine the relative impact of a change in rate on consumption and personal savings: first, the extent to which businesses actually pass on a tax cut or increase in the form of lower or higher prices, and secondly, the degree to which, after making due allowance for a possible "money illusion," consumption spending actually changes in response to the resulting increase or decrease in real income.[2]

The argument that the quality of short-run shifting of the corporate-income tax is the same as that of other business taxes definitely assumes that certain types of pricing policies are followed by business firms which account for a significant portion of corporate-income tax payments.[3] Shiftability of this tax is not, as is sometimes argued, the result of full-cost pricing.[4] Pricing policies of that kind are an essentially static concept which can be shown to represent a reasonable approximation of optimum pricing under conditions where business firms have only limited knowledge of the economic relationships and concepts on which formal price theory is founded.[5] On the other hand, the sort of pricing practices implied by the short-run shiftability of the corporate-income tax do represent a definite departure from optimum pricing within the context of the static and abstract approach of pure theory.[6] The pricing process does not take place in the vacuum of an abstract model, and the large corporation operates in an environment where such socio-political factors as collective bargaining, the court of public opinion, and the threat of anti-trust action can be of the same order of importance as economic considerations. Even with respect to purely economic factors, moreover, it is quite difficult, given the dynamic and uncertain conditions under which business decisions are actually made, to demonstrate that the pricing policies implied by the short-run shifting of the corporate-income tax represent an actual departure from optimum pricing and profit maximization.

The typical large corporation is interested in keeping profits after taxes at an optimum in a specialized but meaningful sense. On the one hand, there is the need to have sufficient funds available to satisfy a number of important corporate purposes: namely, (1) to support, if possible, a stable and gradually increasing dividend rate so as to retain the public support of its stockholders and, at the same time, provide a good market for possible future security sales;

[2] Cf. Musgrave, *op. cit.*, pp. 104-5.

[3] For a contrary view as to pricing policies, see M. A. Adelman, "The Corporate Income Tax in the Long Run," *Journal of Political Economy*, LXV (April, 1957), pp. 151-7. Adelman's argument is, however, chiefly an attempt to rationalize certain empirical data on which his analysis is based. The meaningfulness of these data is discussed below in connection with the relationship of corporate-income tax shifting to long-run economic growth.

[4] B. U. Ratchford and P. B. Han, "The Burden of the Corporate Income Tax," *National Tax Journal*, X (December, 1957), esp. pp. 322-4.

[5] Cf. Fritz Machlup, "Marginal Analysis and Empirical Research," *American Economic Review*, XXXVI (September, 1946), pp. 519-54.

[6] In an abstract model of a growing economy, however, "effects which are formally long-run may be worked out in a short period of time." Diran Bodenhorn, "The Shifting of the Corporate Income Tax in a Growing Economy," *Quarterly Journal of Economics*, LXX (November, 1956), p. 565.

(2) to finance research and expansion and, in a period of rising prices, to finance that part of the replacement for which depreciation allowances are inadequate; and (3) to preserve liquidity in the face of uncertainty and changing business conditions.[7] On the other hand, profits after taxes cannot be allowed to exceed by very much the levels dictated by these requirements for fear of socio-political repercussions. Clearly, in an environment where businesses are striving to achieve a balance between these two sets of factors, the existence of a corporate-income tax should result in a conscious decision to charge higher prices than would have been charged either in the absence of the tax or with a significantly lower rate of tax.[8]

Any fundamental difference between the shifting of the corporate tax and other types of business taxes must lie, therefore, not in the quality of the shifting mechanism but in the degree to which shifting is possible in various industries. Formal partial-equilibrium analysis of tax shifting has always made much of the different results that are obtained under different types of taxes, but many of these theoretical refinements are more or less wasted when one's frame of reference becomes that of developing more workable concepts in tax-shifting analysis. The outstanding characteristic of all taxes levied on a specific, ad-valorem, or gross-receipts basis is that each of these influences costs per unit of output or sales of all firms in an affected industry to approximately the same extent, and alongside the really important areas of uncertainty which are involved in the empirical treatment of tax shifting, any minor differences in shiftability which result from differences in these broadly similar taxes assume only a negligible significance from a practical standpoint.

Apart from variations in geographical tax structures, the only instance where differences in per unit tax burdens assume real importance from the standpoint of price effects is in the case of the corporate-income tax.[9] Because of differences in profit margin, differences in product-mixes and rates of turnover, and uncertainty as to the eventual amount of the tax, the burden of the corporate-income tax per unit of output or sales is very likely to vary considerably among the different firms in an industry, and for this reason the degree to which this tax can be shifted tends to be smaller than in the case of other business taxes. Furthermore, the burden of the corporate-income tax is a contingent one which arises only after the costs of other business taxes have already been covered. This suggests that the shiftability of the tax is not only smaller but more cyclically variable than that of other types of business taxes.

II

The concept of short-run price effects, as analyzed in the preceding para-

[7] This view of the objectives of corporate financial policies appears consistent with the findings of the major survey in this area being conducted at the Harvard Business School. Cf. John Lintner, "Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes," *American Economic Review*, XLVI (May, 1956), pp. 97-107.

[8] Corporate-income tax shifting by regulated companies like public utilities constitutes a special case, which is discussed below.

[9] The only possible other exception is the case of lump-sum taxes which form part of overhead costs rather than prime costs. However, taxes of this sort are almost always shifted in practice by the great bulk of business enterprises. And even in the limiting cases where some portion of overhead costs is not covered in the short run, it is difficult to separate the tax costs from the other components of overhead cost and determine just which portion it is that is not covered.

graphs, is so intimately connected and bound up with the normal short-run pricing policies of business that it is quite difficult to separate the two even under relatively normal economic conditions. Moreover, since the important tax-rate changes in American financial history over the past few decades have almost invariably been associated with major economic-political changes which have affected the general business climate, the *ceteris paribus* assumptions involved are really heroic, and any conclusions with respect to the shiftability of taxes which are based on an analysis of tax-rate changes must be handled with extreme caution.[10] As a consequence, the discovery that the rate of return after taxes on corporate investment in manufacturing industries did not respond in the short run to changes in the corporate-income tax rate does not by itself necessarily prove or disprove anything with respect to the short-run shiftability of this tax.[11] Neither do negative replies by business firms to questionnaires which ask directly if it is their policy to change prices whenever the corporate-income tax rate is altered.[12]

[10] These same limitations apply, with somewhat less validity, to attempts at utilizing data on tax-rate changes to derive conclusions about the impact of the corporate-income tax on the capital structure. See, in this connection, Herbert A. Leggett, "Effect of the Corporate Income Tax on Corporate Financing," *Federal Tax Policy for Economic Growth and Stability, op. cit.*, pp. 607-10.

[11] For a statement of the opposite point of view, see Eugene M. Lerner and Eldon S. Hendriksen, "Federal Taxes on Corporate Income and the Rate of Return on Investment in Manufacturing, 1927 to 1952," *National Tax Journal*, IX (September, 1956), esp. pp. 194-8.

[12] See Robert P. Collier, "Some Empirical Evidence on Tax Incidence," *National Tax Journal*, XI (March, 1958), esp. pp. 52-3. It should be recognized, moreover, that the red cedar shingle industry to which Collier sent his questionnaire does not have the kind of market structure which was described above as being most favorable to short-run shifting.

Since it seems virtually impossible to verify the short-run shifting of the corporate-income tax by direct statistical testing, the possibility of directly measuring any shifting must also be ruled out. Nevertheless, one can proceed indirectly to obtain a usable approximation of the orders of magnitude which may be involved in such shifting by making use of the analysis of the preceding section to check, in quantitative terms, the consistency of short-run corporate-income tax shifting with (1) estimates of its comparative shiftability relative to other business taxes and (2) our knowledge of the market structure of American industry. The first of these offers a particularly useful basis for comparison since the conventions of national-income accounting and the conclusions of most observers of contemporary American pricing policies are both in substantial agreement that, in the cases of most other business taxes, unit prices do go up by approximately the amount of the tax.

A quantitative estimate of the comparative shiftability of the corporate-income tax is made difficult by the fact that the very process of shifting this tax gives rise to increased tax collections. In order to illustrate this, let us compare the shifting process in the cases of a specific tax of $2.00 per unit and a 50 per cent corporate-income tax, both of which are assumed to be imposed in an industry with pretax profit margins of $4.00 per unit. In the first case, complete forward shifting of the specific tax would imply that the price per unit would be $2.00 higher than in the absence of the tax, and since tax collections per unit would also amount to $2.00, tax-collection data would provide a clear-cut and unambiguous index of the price effects involved and the re-

sulting burden on the consumer.

Under the corporate-income tax alternative, on the other hand, a higher price of $2.00 per unit would mean that, in one important sense, the tax had been shifted fully to an extent commensurate with that of the specific tax. However, since the increase in price would imply that taxable profit margins were now $6.00 per unit, tax collections would amount to $3.00 per unit, and only two-thirds of this amount would be sufficient to measure the burden imposed on consumers through higher prices. As compared to the specific tax, the comparative price effects of corporate-income tax shifting amount, in this example, to 100 per cent, but the degree of collection-measured incidence which falls on the consumer is only 66.7 per cent. This distinction is an important one because, while most empirical work with tax shifting must concern itself with tax-collection data, theoretical analysis of the smaller degree of shiftability of the corporate-income tax runs essentially in terms of comparative price effects.

The portion of each $1 billion dollars of total corporate-tax collections that can be expected to fall upon the consumer under various assumptions of comparative price effects is given in Table I for a number of corporate-income tax rates. A comparison of the amounts for the existing 52 per cent rate, the 38 per cent rate which was in effect in the late nineteen forties, and the 10 per cent and 15 per cent rates shows some striking differences. However, beyond illustrating quite vividly just how much harder it is to shift a large tax than it is

TABLE I

CONSUMER INCIDENCE, AT DIFFERENT TAX RATES, OF EACH ONE BILLION DOLLARS OF TOTAL TAX REVENUES UNDER VARIOUS ASSUMPTIONS OF COMPARATIVE CORPORATE-INCOME TAX SHIFTABILITY

(In millions of dollars)

Total Comparative Price Effect [1]	Corporate Income Tax Rate [2]						
	10%	15%	33%	38%	47%	52%	57%
25.0%	$ 244	$ 241	$ 231	$ 228	$ 223	$ 221	$ 219
50.0	476	465	429	420	405	397	389
75.0	698	674	601	584	555	540	525
100.0	909	870	752	725	680	657	637
111.1	1,000	952	805	781	730	704	680
117.6	1,052	1,000	847	813	757	730	704
149.3	1,299	1,220	1,000	953	877	840	807
161.3	1,389	1,299	1,053	1,000	917	877	840
188.7	1,587	1,471	1,163	1,099	1,000	952	909
208.3	1,724	1,587	1,234	1,163	1,053	1,000	952
232.6	1,887	1,724	1,314	1,235	1,111	1,053	1,000

[1] The comparative total price effect (x) is defined as the ratio, in percentage terms, of A) the price increase which would be associated with the shifting of the entire corporate-income tax to B) the price increase that would have accompanied full shifting of a specific tax of an equivalent amount per unit of sales.

[2] The percentage share of total tax collections falling on the consumer is equal to the increase in unit price (xT) divided by total tax collections per unit ($rP + rxT$), where r is the corporate-income tax rate, P is the profit margin, and T is the specific tax. However, since for the sake of meaningful comparability r must be defined as equal to T/P (see note 1), this expression can be simplified to $x/1 + xr$.

a small one, the table has only a limited usefulness for our present purpose. The basis of comparison is with the situation which would have existed in the absence of any corporate-income tax,[13] and for this reason the information on collection-measured incidence that is contained in the table is primarily applicable to such problems as measuring the distribution of the tax burden from an equity standpoint.

TABLE II

CONSUMER INCIDENCE, AT DIFFERENT TAX RATES, OF EACH ONE BILLION DOLLARS OF MARGINAL TAX REVENUES UNDER VARIOUS ASSUMPTIONS OF COMPARATIVE CORPORATE-INCOME TAX SHIFTABILITY

(In millions of dollars)

Comparative Marginal Price Effect [1]	Corporate Income Tax Rate [2]			
	15%	38%	52%	47%
25%	$ 59	$ 53	$ 51	$ 50
50	222	185	167	162
75	473	369	323	305
100	803	586	499	484

[1] The comparative marginal price effect is defined as the ratio, in percentage terms, of A) the price increase which would be associated with the shifting of an increase in the corporate-income tax to B) the price increase which would have accompanied full shifting of an increase in a specific tax of an equivalent amount per unit of sales.

[2] The percentage share of a change in tax collections falling on the consumer is equal to A) the expression $z(r_2 - r_1)$ where z is the comparative marginal price effect, r_2 is the tax-rate shown, and r_1 is the tax rate five points below that, divided by B) the change in revenues $\left(r_2 \Big/ \frac{x}{1+xr_2} - r_1 \Big/ \frac{x}{1+xr_1}\right)$ where $\frac{x}{1+xr_2}$ and $\frac{x}{1+xr_1}$ are the percentage shares of total revenues falling on the consumer as defined and derived in Table I. The comparative total price effect (x) is thus assumed to be equal to the comparative marginal price effect (z).

[13] For a precise definition of the relationship between "comparative total price effects" and "degree of total collection-measured consumer incidence," see the notes to Table I.

For the problem of short-run economic stability, the relevant basis of comparison is not with the no-tax situation, but with the one which would prevail at somewhat higher or lower tax rates. The focus of interest here is not on "total price effects" and their significance in terms of total tax collections, but rather on "marginal price effects" and their relation to changes in tax collections.[14] This relationship is given in Table II for five-point changes in the tax rate at four different levels of tax. As can be readily seen, under the existing 52 per cent rate of tax only $499 million of a corporate-tax reduction of $1 billion would benefit the consumer through lower prices *even* if it is assumed that the comparative shiftability of the corporate-income tax in *all* sectors of the economy is as great as that of other kinds of business taxes (i.e., 100 per cent).

In the qualitative analysis given at the outset, however, it was definitely concluded that, with the possible exception of the special case of regulated companies where shifting takes place through the decisions of administrative bodies, the corporate-income tax is in general significantly less shiftable than other types of business taxes,[15] and for this reason the benefit to the consumer of a tax cut

[14] The derivation of the concept of "comparative marginal price effect" is explained in detail in the notes to Table II.

[15] One paradoxical corollary of the socio-political rationale for short-run corporate-income tax shifting is the possibility that this tax may actually be more highly shiftable than other business taxes for the least efficient firms in industries characterized by a "price-leader" pattern of behavior. The after-tax profits of such firms could conceivably, after some shifting by the more efficient industry leader, be higher than they would be in the absence of any tax. However, the significance of such cases would appear to be extremely limited in terms of corporate-income tax collections.

of $1 billion would probably be considerably less than $499 million. If, for example, the comparative prices effects are assumed to be 75 per cent, this benefit would amount to only $323 million, and alternatively, if comparable shiftability is assumed to be only 50 per cent,

III

A picture of the relative importance of the corporate tax liabilities of major sectors of the economy is given in Table III. Industries have been classified in five broad groups on the basis of possible differences in short-run corporate-income tax shiftability. The data cover two relatively depressed years (1949 and 1954) and two relatively more prosperous years (1951 and 1956), as well as an average for 1948-1957 that is considered to be representative of the postwar period as a whole.

TABLE III

SHIFTABILITY OF FEDERAL AND STATE CORPORATE PROFITS TAX LIABILITIES ANALYZED IN TERMS OF MARKET STRUCTURES OF INDIVIDUAL INDUSTRIAL GROUPS

(In millions of dollars)

	1949	1951	1954	1956	Average 1948–1957
GROUP I					
200 Large Manufacturing Companies ...	$ 2,017	$ 5,321	$ 3,419	$ 4,410	$ 3,944
Group Total	2,017	5,321	3,419	4,410	3,944
% of Total Liabilities	19.4	23.7	19.9	19.7	21.2
GROUP II					
Communications and Public Utilities ...	674	1,341	1,784	2,217	1,524
Transportation	474	1,037	589	822	801
Group Total	1,148	2,378	2,373	3,039	2,325
% of Total Liabilities	11.1	10.6	13.8	13.6	12.5
GROUP III					
Agriculture, Forestry, and Fisheries	65	101	58	58	71
Mining	259	445	285	469	364
Finance, Insurance, and Real Estate	1,180	1,700	2,298	2,253	1,861
Group Total	1,504	2,246	2,641	2,780	2,296
% of Total Liabilities	14.5	10.0	15.3	12.4	12.3
GROUP IV					
Contract Construction	212	301	274	306	271
Wholesale and Retail Trade	1,570	2,834	1,969	2,671	2,356
Group Total	1,782	3,135	2,243	2,977	2,627
% of Total Liabilities	17.2	14.0	13.0	13.3	14.1
GROUP V					
"Other" Manufacturing Companies	3,696	9,043	6,218	8,812	7,086
Services	228	324	326	404	319
Group Total	3,924	9,367	6,544	9,216	7,405
% of Total Liabilities	37.8	41.7	38.0	41.0	39.9
ALL INDUSTRIAL GROUPS: TOTAL	10,375	22,447	17,220	22,422	18,597

Sources: "Sales, Profits, and Dividends of Large Corporations," *Federal Reserve Bulletin*, various issues; U. S. Department of Commerce, *U. S. Income and Output*, Washington: Government Printing Office, 1958, p. 204.

the gain to the consumer declines to $167 million. More precision than this cannot be obtained without moving on to consider how the degree of corporate-income tax shifting may be influenced by the existing market structure of American industry.

Groups I and II embrace those industrial sectors where shifting of the tax is not only possible but likely to be quite large. The 200 largest manufacturing corporations are taken as being most typical of those companies which exhibit the oligopolistic characteristics and sensitivity to socio-political forces which were described above as being highly conducive to the short-run shifting of the corporate-income tax. The ample size of their pretax margin of profit on sales (a postwar average of 16.31 per cent) appears, moreover, to be consistent with such a hypothesis.[16] The 200 companies accounted for an average of 21.2 per cent of total tax liabilities in the post-war period, and an over-all corporate tax reduction of $1 billion would thus be accompanied by a $212 million decrease in tax collections from these corporations. Applying the analysis of the preceding section, this would imply, in turn, that the corresponding benefit to the consumer would amount to either $68 million or $35 million under the alternative assumptions of comparative price effects of 75 per cent and 50 per cent, respectively.

The other group for which shifting is likely to be large consists of regulated companies in the areas of transportation, public utilities, and communications which account, on the average, for about one-eighth of total tax liabilities. In these cases, shifting is entirely the result of the rulings of rate-making bodies, and it must be recognized that, although shifting of this kind may be quite important for some problems, the shifting process involved is largely irrelevant in terms of short-run price effects.[17] Rates would presumably be unaffected when cuts are made in corporate-income tax rates; and although rate-making procedures would tend to be relatively more responsive to tax-rate increases, there would probably be a sufficiently long time-lag to preclude them from being important from the standpoint of short-run compensatory policy.

Another one-eighth of total corporate-tax liabilities is provided by companies in economic sectors where corporate-income tax shifting appears virtually impossible (Group III). Corporations in natural-resource industries like agriculture, forestry, fisheries and mining (a) operate in a market environment in which they compete with both foreign and domestic concerns which are not subject to the tax or (b) find their degree of profitability determined principally by government price-support, subsidy, or tariff programs. Short-run corporate-income tax shifting also appears quite unlikely in the fields of finance, insurance, and real estate where gross and net income are primarily influenced by the level of interest rates as determined by government monetary and fiscal policies.

There remains the approximately one-half of total tax liabilities which is owed by corporations in sectors where the possibility of shifting cannot be readily proved or disproved (Groups IV

[16] For the profit margins of 200 large manufacturing corporations, see "Sales, Profits, and Dividends of Large Corporations," *Federal Reserve Bulletin*, various issues. The profit margins in other parts of the corporate sector, which are discussed below, are derived from U. S. Department of Commerce, *U. S. Income and Output* (Washington: Government Printing Office, 1958), pp. 203 and 215.

[17] In his 1954 study, on the other hand, Musgrave apparently identifies the short-run fiscal policy effects of corporate-income tax shifting with the equity effects. After assuming that one-third of the burden of tax collections from this source rested on the consumer (*op. cit.*, p. 100), he then goes on to argue that a corporate tax reduction of one billion dollars would also benefit the consumer by one-third of the cut (*ibid.*, p. 105).

and V). For this very reason, however, it seems probable that any amount of shifting which does take place in these sectors should be quite small compared with that by the 200 large manufacturing corporations. Some of the industries concerned (e.g., construction and wholesale and retail trade) earn such low pretax margins of profit on sales (3.27 per cent and 2.84 per cent, respectively) that very little corporate-income tax shifting could occur,[18] and while some of the other industries (e.g., services and "other" manufacturing) do have significantly larger profit margins (5.26 per cent and 7.31 per cent, respectively), they do not exhibit either the oligopolistic characteristics or great sensitivity to socio-political forces shown by the 200 large manufacturing corporations.

As can be seen from Table III, an over-all corporate-tax reduction of $1 billion would, on the average, reduce collections from companies in Groups IV and V by $540 million, and under the assumption of 50 per cent comparative price effects in these sectors, some $90 million of this decline would redound to the benefits of consumers. On the other hand, if one makes the alternative and, in the author's opinion, far more realistic assumption of a 25 per cent degree of comparative shiftability for industries in these Groups, the share of $540 million reduction which would accrue to the consumer would be only $28 million.

When this figure is combined with our "order of magnitude" estimates for short-run corporate-income shifting by 200 large manufacturing corporations, the conclusion seems inescapable that the degree of collection-measured consumer incidence which is associated with changes in the corporate-tax is very small. Even if the possibilities of cyclical variation in the shiftability of this tax are ignored,[19] the portion of the reduction in revenues which would benefit the consumer would appear to be well under 10 per cent. However, when it is also recognized (1) that the share in total tax liabilities of the sectors where corporate-income tax shifting is possible rises and falls cyclically (see Table III), (2) that the cyclical variability of corporate-income tax shiftability tends, as was pointed out earlier, to be considerably greater than that of other business taxes, and (3) that it is only consistency with national-income accounting procedures which gives one an excuse for ignoring the latter, it seems clear that the amount of short-run corporate-income tax shifting which takes place under relatively non-buoyant economic conditions is much smaller than even our quantitative analysis has indicated. Indeed, for all practical purposes, it might very well be considered as negligible.

IV

Although the short-run shiftability of the corporate-income tax is small enough quantitatively to be ignored in fiscal policies concerned with short-run stability, the long-run shifting of the tax, about which there is a much broader area of agreement, might of course have considerably more practical importance.

[18] Furthermore, in view of the relatively small margins of profit on sales which are typical of firms in wholesale and retail trade, the "pyramiding" by such firms of any corporate-income taxes that are shifted forward by the manufacturing sector cannot be of much quantitative significance.

[19] To the degree that there is cyclical variation in the shifting of the corporate-income tax, the tax performs the role of an "automatic stabilizer" since its incidence on the consumer tends to be relatively more heavy in boom times and comparatively less burdensome in recessions.

The basic factor to be considered, in the case of fiscal policies with longer-run objectives, is the effects of taxes on the rate of economic growth. And this, in turn, is enough to cast serious doubts on the efficacy of attempts to verify and measure statistically the long-run shiftability of the corporate-income tax. The normal form of shifting analysis is essentially a microeconomic concept, and while a shift to a macroeconomic framework does not create problems in the case of short-run fiscal policies where interest is restricted to price effects, such a shift does become quite important when the macroeconomic framework is broadened to include both output and " rate of growth " effects.

In microanalysis the treatment of shifting is based entirely on a) the impact of a tax on business incentives and b) the distinction between incentives in the short run and in the long run. With the particular form of macroanalysis involved here, on the other hand, shifting cannot be restricted to a consideration of incentives alone, for the frame of reference also embraces the impact of a tax on the financial capacity to invest. Moreover, since the emphasis is on rates of growth in output, the distinction between the short run and long run loses much of the meaning and precision which it has in microeconomics.

The relevance of these considerations can be seen from a comparison of the results achieved under some of the more recent treatments of corporate-income tax shifting in a growing economy with those obtained under the more orthodox method of comparative statics. Among the writers who have explored dynamic analysis of tax shifting, Bodenhorn stresses the role of investment policies and decisions in the shifting process—with the corporate-income tax being shifted by the deliberate postponement of investment in the face of increasing demand until such time as the rise in prices that results restores the profitability of investment.[20] Lintner, on the other hand, follows more closely in the line of the traditional approach by placing the initial emphasis on the role of a conscious policy of increasing prices, which lead in turn to a slowing down of the rate of growth of effective demand and a subsequent reduction in induced investment through the familiar mechanism of the acceleration principle.[21] However, even if one were to assume that no conscious policy decisions were made to shift the tax either directly or indirectly, there would still be, as in either of these cases, a slower rate of growth in real investment and aggregate production than would have taken place in the absence of the corporate-income tax or with a lower rate of tax. An unshifted corporate-income tax also tends to lower the rate of real investment in the corporate sector of the economy because of (1) the reduced availability of investment funds and (2) the smaller number of investment projects which would be above the threshold of profitability. And even in the limiting case of an industry or industries where some portion of the tax falls on pure economic surplus and hence is unshiftable by definition, the smaller availability of investment funds would act to reduce the rate of capital formation in the economy as a whole (though not, of course, in the particular industries involved).

Within the confines of the usual form of growth theory, Say's law of markets

[20] Bodenhorn, *op. cit.*, pp. 564-6.

[21] John Lintner, " Effects of a Shifted Corporate Income Tax on Real Investment," *National Tax Journal*, VIII (September, 1955), esp. pp. 243-6.

holds as a matter of definition, and it becomes the existence of the corporate-income tax, rather than its shiftability, which is important for the rate of over-all economic growth. For this reason, one would expect to find, almost on *a priori* grounds, that aggregative empirical evidence would be consistent with the long-run shifting of the tax, and from this standpoint the findings of Lerner and Hendriksen with respect to the long-run constancy of the rate of return after taxes on corporate investment in manufacturing can be considered practically tautological.[22] These same *a priori* considerations also shed some light on the meaningfulness of Adelman's recent conclusion that the shiftability of the corporate-income tax is disproved by data showing the long-run constancy of the share of pre-tax profits originating in the corporate sector;[23] the weight of argument appears to be very much on the side of Ratchford and Han, who have contended that such pretax data have to be adjusted for changes in both the rate of interest and the rate of turnover before they can be validly interpreted from the standpoint of corporate-income tax shiftability.[24]

Some of the other recent analytical and statistical work which has been done in connection with various macroeconomic aspects of the corporate-income tax also tends to be consistent with the conclusion that it is the existence rather than the shiftability of this tax which is important for the over-all growth of the economy.[25] Miller and Shelton, for example, have given a solid analytical proof that, insofar as it affects the corporate capital structure, the "corporate income tax, shifted or unshifted, biases decisions in favor of debt financing."[26] A somewhat similar conclusion with respect to equity considerations was reached by Holland in his exhaustive empirical study of the burden of the tax.[27] His findings show that, although an assumption of 50 per cent shiftability would virtually eliminate measurable "double taxation" of dividends in the lower individual income tax brackets, it would, at the same time, significantly increase the degree of "under taxation" in the upper income tax brackets.[28]

From the macroanalytical viewpoint of longer-run fiscal policies, the real value of the dynamic analysis of Bodenhorn and Lintner would, as a consequence, appear to be primarily qualitative in nature; work of this kind adds greatly to our understanding of the processes by which the economic effects of the corporate-income tax work themselves out in a growing economy and of the role which conscious price and investment policy decisions can play in

[22] Lerner and Hendriksen, *op. cit.*, p. 202. On the other hand, empirical evidence of long-run shifting in individual industries is not necessarily tautological. See, for example, Collier's findings on the red cedar shingle industry (*op. cit.*, p. 53).

[23] Adelman, *op. cit.*, pp. 151-2.

[24] Ratchford and Han, *op. cit.*, pp. 318-9.

[25] Perhaps "over-all rate of capital formation" is a more appropriate term. It has been suggested that the existence of high corporate-income tax rates is part of the explanation for the decline of the capital-output ratio in manufacturing between 1929 and 1956. See, for example, William F. Butler, "Capital Utilization and the Rate of Profitability in Manufacturing," *American Economic Review*, XLVIII (May, 1958), p. 246; and Eric Schiff, "Discussion," *ibid.*, p. 262.

[26] Merton H. Miller and John P. Shelton, "Effects of a Shifted Corporate Income Tax on Capital Structure," *National Tax Journal*, VIII (September, 1955), p. 256.

[27] Daniel M. Holland, *The Income-Tax Burden on Shareholders* (Princeton: Princeton University Press for The National Bureau of Economic Research, 1958).

[28] *Ibid.*, pp. 92-5.

these processes. From a quantitative standpoint, however, while it is probably true that the exact time-path which growth follows in the economy will tend to vary somewhat in accordance with the precise amount, if any, of corporate-income tax shifting that takes place. However, variations of this sort are certainly very minor when compared to the markedly different time-path of growth which would exist in the absence of a corporate-income tax. And considering the uncertainties involved, one must remain skeptical that our knowledge can ever reach the stage where those nuances of difference which are entirely due to the degree of shifting can be determined with any quantitative meaningfulness.

V

The general controversy over the shiftability of the corporate-income tax will undoubtedly continue to rage—largely because of, as the foregoing analysis has endeavored to show, the virtual impossibility of verifying or disproving either short-run or long-run shifting by the usual means of direct statistical testing. At the same time, however, it is believed that existing areas of disagreement about certain specialized problems affected by corporate-income tax shifting should be significantly narrowed by the conclusions derived from our indirect quantitative approach. In the opinion of the writer, the analysis has clearly demonstrated that, in the important areas of fiscal policies for economic growth and stability, the quantitative importance of the effects of any shifting are so minor that they can be safely ignored in forecasting and policy-making. The critical issue, from a broad fiscal-policy standpoint, is the existence of the corporate-income tax, itself, and not its shiftability.

Another major conclusion which emerges from our analysis is that, in tax studies which make use of empirical data, the general term " shifting " tends to be a relatively vague one, which assumes concrete meaning only when it is related to a specific policy problem. The fuzziness and the contradictory nature of shifting concepts which have been observed in our study of the corporate-income tax also pertain, with the exception of those arising from the " net " basis of the tax, to many other kinds of taxes which are paid by business. Extreme care must be exercised, therefore, to frame appropriate empirical definitions for each of the separate problems of stability, equity, growth, and the structure of production.

DETERMINANTS OF PUBLIC EDUCATION EXPENDITURES

WERNER Z. HIRSCH *

" Bad education isn't cheap either. Its high costs are paid from other budgets—for poverty and sickness and unemployment and juvenile delinquency. The question is not only ' What will an adequate education program cost? ' The question is even more ' What is the cost of not having such a program? ' . . . "

Adlai E. Stevenson, *What I Think* (New York, Harper & Brothers, 1956), pp. 146-148

I. *Introduction*

IN 1957, with national income at $364 billion, expenditures for public primary and secondary schools in the United States amounted to $12.2 billion, while all state and local government expenditures, including those for public education, were $40.4 billion. Thus, the expenditures for public primary and secondary schools accounted for about 30 per cent of all state and local government expenditures and about 3.4 per cent of national income. At the same time, our schools employed more than 2 million men and women who in turn served almost 29 million pupils in average daily attendance (ADA).

While in 1957 an average of $420 was spent per pupil in average daily attendance, great differences existed among states and even greater ones among the various school districts. Thus, for instance, among the 29 school districts of St. Louis County, Missouri, per pupil expenditures ranged from a low of $121 to a high of $728.[1] In the Cleveland Metropolitan area the low was $303 and the high $1,030.[2] Even more extreme cases can probably be found elsewhere.

It is of interest, therefore, to gain a better understanding of this important segment of our economy. Why do per pupil expenditures vary so greatly? Or, to put the question more precisely—what are the determinants of expenditures for public primary and secondary education and what is their relative importance?

This paper will make an attempt in this direction by suggesting a framework within which these determinants can be identified, measured and rated. First an ideal model will be presented, which in the light of problems of implementation will be simplified and reduced to some working hypotheses. They will then be tested in terms of a case study. The working hypotheses would clearly be incomplete, unless they would permit testing the relative importance of such items as service levels, efficiency and economies of scale, and income elasticities. If successful, the framework should provide answers to the following types of questions—" How

* The author is indebted to Harvey S. Perloff, Laszlo L. Ecker-Racz and Lowdon Wingo for helpful comments. Needless to say, all three are accorded the usual discharge from responsibility.

[1] St. Louis County Superintendent of Schools, *Annual Report* (Clayton, Missouri, 1957).

[2] Seymour Sacks, Leo M. Egand, and William F. Hellmuth, *The Cleveland Metropolitan Area—A Fiscal Profile* (Cleveland, Cleveland Metropolitan Service Commission, 1958).

efficiently are schools run?" "Is consolidation of school districts likely to reduce per pupil expenditures?" and "How dependent are expenditures for public schools upon the people's financial ability?"

It is not easy to separate total expenditures for public primary and secondary education into meaningful expenditure components. Nevertheless, an attempt will be made, and hypotheses about the determinants of such expenditure components as instruction, general control, auxiliary services, etc., will be tested.

Before the service level, or what really amounts to "scope and quality," of primary and secondary education can be introduced as a variable, an appropriate index will have to be developed. This paper will suggest characteristics that should be included in an ideal index; it will also present a simplified index and implement it for a case study. The final section will look into some of the policy implications.

II. *The "Ideal" Model*

It is helpful to look upon per capita expenditures for public schools as being affected by at least five main characteristics of the local area. They are—

a. population size,
b. sociological characteristics,
c. physical characteristics,
d. economic characteristics, including financial ability to afford education, and
e. governmental characteristics.

If public primary and secondary education could be of only one clearly defined and measurable scope and quality and, thus, have only a single service level, or if expenditures and service level were perfectly correlated, expenditures could be directly related to the area's characteristics. However, as with automobile purchases, which may mean Lincolns, Buicks or Plymouths, people also buy different qualities of public education, except that they are less conscious of it. Furthermore, as is to be expected, the case study data which will be presented below indicated that expenditures and service levels are far from perfectly correlated.

For this reason it is useful to add as a further expenditure determinant the scope and quality of public education.

In very broad terms, it can be stated that

$$X'_1 = f(a,b,c,d,e,f) \qquad (1.1)$$

where, X'_1 is per pupil expenditures for public primary and secondary education per pupil in average daily attendance.[3]

A definitive hypothesis would include many detailed characteristics under the different headings, except *a*. For example, among the sociological characteristics the following could affect per capita expenditures for public education and might be included in the hypothesis—

age structure of population,
ethnic origin of population,
educational level of population,
occupational and professional characteristics of population,
religious affiliation of population,
rate of population change, and
population density.

Under physical characteristics the following factors could be listed—

[3] These six factors might be said to affect expenditures directly. But they in turn are determined by final demand changes which propagate themselves through the area's economy via a maze of complex interrelationships, i.e., the area's structural characteristics, to use regional input-output terminology. Furthermore, structural changes of the local economy can constitute original stimuli. In this paper, no explicit attention will be paid to this complex relationship.

size (in square miles) of school district,
climate of area, and
layout and shape of school district.

The Service Level Concept. The scope and quality of public education can be measured by taking two different lines of attack. One would attempt to measure the results of education. It would aim at comparing achievement with native ability. Specifically, it could compare a pupil's achievement test results obtained in high school with the results of his I.Q. test taken early in his primary grade school days. One complicating element in this approach is that school districts do not have identical educational objectives. Some schools consider it their task to prepare youngsters for college, while other schools, particularly those in rural America and to some extent in the core cities, have as their main objective the provision of vocational training. There can be no doubt that students will score differently on an achievement test depending upon the school's objective.

The other attack attempts to measure the various ingredients that are commonly thought to make for good education.

Here are some of the factors that might be included in such an index of the scope and quality of public education—

(1) Class size: While the average pupil-teacher ratio is a reasonably good indication of class size, like any other average it conceals much detail. For instance, since high school classes are smaller than primary school classes, the age distribution is important. Another telling item would be whether the school will offer a course in advanced mathematics or a foreign language if only 10 or 15 students are enrolled. Also the number of teacher aides is to be considered.

(2) Grouping: Many educators maintain that good education requires that, within limits, students of common ability and interest be grouped together.[4] Even after this philosophy is generally adopted, schools will differ as to whether they are grouping students at all ability levels, and also whether they are able to deal with very small groups of very able students.

(3) Quality of the teaching staff: A good teaching staff has a number of important characteristics, some more tangible than others. The per cent of experienced teachers is revealing. Do they tend to stay on for a career in the school system or do they move often? Also, the background of the teaching staff plays a dominating role. What is the per cent of teachers who are graduates of strong liberal arts colleges with majors in the field in which they are teaching? The method used for selecting new teachers and of appraising the quality of the existing staff are also of interest. A good school interviews many persons for a position; it looks outside the borders of its district and even outside its state for personnel. Thus, an important indicator might be the average number of outside-the-area candidates interviewed for each teacher hired, or the per cent of outsiders on the staff. In addition, the better school systems have an organized program of teacher appraisal on which merit increases are based.

Teaching load is another indicator. In many schools 20 hours of teaching a week and dealing with about 175 students is considered normal. It might be

[4] See James B. Conant, *The American High School Today,* (New York, McGraw-Hill, 1959) 140 pp.

helpful to relate the average teaching load of a given school to the national average.

Finally, the quality of the teaching staff depends to no small extent on the number and the variety of specialists included. Is there a full time librarian, or more than one, and what is the number of students per librarian? Likewise, how many counsellors are there, and how many students per counsellor? Similar figures should be collected for other specialists.

(4) Quality of school administration: The leadership offered and ability of the school superintendent and his principals cannot be neglected; yet it is most difficult to appraise their contributions. Usually, principals who are not relieved from all teaching cannot do a superior job.

(5) Teaching program: Schools with a good college preparatory program insist that college bound students carry four courses a year in English, mathematics, science, history or foreign languages. What per cent of the students have such a program? How far does the mathematics program go? What per cent of the students take mathematics courses beyond a second year of algebra and one year of plane geometry? Are they taught calculus? In the foreign language field, what per cent of the students take three or four years of foreign languages? How much writing is done in the English classes?

III. *A Simplified Model and Its Implementation*

While it is perhaps possible to develop an ideal hypothesis which details the six factors discussed above, the task of implementation is enormous. Before multiple regression and correlation techniques can be applied, either cross section or time series data are needed for each variable included in the hypothesis. Often time series data are more difficult to obtain than are cross section data.

Keeping in mind the variables of such an approach, a case study of the St. Louis City-County area was undertaken and a working hypothesis was quantified and tested. Before turning to this item, a few words about the St. Louis area, its school districts and state school financing laws.

The Case Study Area. The St. Louis City-County area has a total population of about 1½ million. St. Louis City with a population of about 850,000 has a single school district, while St. Louis County has 29 districts, 26 of which operate both primary and secondary schools, while the other three have merely primary schools. The 1954-55 enrollment of the St. Louis City district was 84,000, while the smallest of the 26 County districts with both primary and secondary schools had an enrollment of 600 and the largest had one of 7,000. Total expenditure per pupil in St. Louis City was $261, and in the County districts it ranged from $121 to $728. Some school districts, including that of St. Louis City, grew very little between 1951 and 1956, while one school district increased 225 per cent. There existed great differences in per pupil assessed valuation of real property; the low was $1,500 and the high $24,000.

Finally, the tax rate levied upon property within these school districts varied tremendously. The school districts of the City of St. Louis had the lowest rate. In the County school districts the tax rate ranged from $1.68 to $3.58 on $100 of assessed valuation.

The State of Missouri has a school aid program under which relatively small subsidies are paid to a district per pupil

in ADA. In addition, the equalization phase of the program is designed to assure each district $110 per pupil in ADA. During the period under discussion, the state contributed virtually nothing under its equalization program, i.e., less than $60,000 in 1954-55. The virtual absence of state equalization payments made the St. Louis City-County area useful for the purpose of this case study. It excluded many knotty problems connected with identifying determinants of a progresssive state subsidy.

A Working Hypothesis for a Case Study. The fact that public education varies in " scope and quality " from one school district to the next complicates the analysis. Testing a hypothesis that includes scope and quality as an independent variable permits an assessment of the importance of different factors in relation to per pupil expenditures of a given quality of education. There is, however, one exception. Income elasticity is estimated better by relating income, or its equivalent, to per pupil expenditures, permitting the service level to vary.

With these considerations in mind, our first working model will include scope and quality as an independent variable; but it will not be used to estimate income elasticity. Instead, a second model, excluding the scope and quality variable, will be developed and income elasticity coefficients will be estimated for all of the main expenditure components.

In the light of difficulties of implementation, the ideal hypothesis was reduced to a working hypothesis, which includes the following variables—

X_1—total current expenditures plus debt service for public primary and secondary education per pupil in ADA.

If capital outlays were added to these figures, total expenditures would result. However, since capital outlays are very sporadic and hard to predict, they are not included in the analysis.

X_2—number of pupils in ADA in public primary and secondary schools.

This variable is designed to measure the scale at which a school district operates. The size of the school district in relation to expenditures can measure economies of scale, if such are present. There is, however, a complicating element which must be mentioned: school size. Clearly, economies can come about because of the size of the individual school as well as that of the school district. While records are not kept on a school basis, it appears generally true that in very small school districts the schools are small and in medium and large school districts there does not appear to be much difference in the size of schools.

X_3—high school pupils in ADA as a per cent of all pupils in ADA.

There are many indications that pupil-teacher ratios are smaller in high schools than in primary schools. Furthermore, high school salaries are often higher and equipment more expensive than in primary schools.

X_4—number of public school pupils in ADA per square mile.

Pupils who live far from their school need school bus transportation, which increases school expenditures. Since density of pupils can be assumed to reflect their relative proximity to schools, the lower the density, the farther away some children live, and the higher, therefore, school bus transportation expenditures.

X_5—per cent increase in public school pupils in ADA, 1951-56.

The general presumption is that young

and rapidly growing areas incur relatively high per pupil expenditures; their debt service charges, in particular, are apt to be high.

X_6—average assessed valuation of real property per pupil in ADA.

The assessed valuation of real property tends to be highly correlated with the valuation of all property in a school district. Data for the former are readily available, but not for the latter. Since schools are almost exclusively financed by property taxes, assessed valuation is a good gauge of the financial ability of the district. At the same time, there are indications that in the St. Louis City-County area assessed valuation of real property is highly correlated with personal income in each district.

X_7—index of scope and quality of public education in primary and secondary schools.

The index is composed of six subindices—

A = number of teachers per 100 pupils in ADA.[5]
B = number of college hours of average teacher.
C = average teacher salary.
D = per cent of teachers with more than 10 years of experience.
E = number of high school credit units.
F = per cent of high school seniors entering college.

In this index, *A* is supposed to reflect class size, *B*, *C* and *D* quality of teaching staff, and *E* quality of teaching program. It is true that *F* is not an ingredient of good education. Instead it is a crude way of approximating an achievement-native ability comparison. It may, however, be a better measure than appears at first glance. It is widely assumed that whether a high school senior enters college depends mainly upon the financial situation of his parents. Yet the rank correlation coefficient measuring the 1955 relation between per cent of high school seniors entering college in 1955 and average assessed valuation of the 27 school districts, is + 0.34, and is statistically barely significant at the .05 level. This low correlation may have a number of reasons. College education has become more and more universal and is no longer available primarily to the sons of the well-to-do. Also, school districts are not entirely homogeneous in regard to property values. And finally, assessed valuation is not only the product of residential property values, it is also affected by the relative importance of commercial and industrial property located within its boundaries.

The weighting problem is truly difficult. Who can confidently assess the relative importance of the number of teachers per 100 pupils, as compared to the number of high school credits offered by the school? Since no useful basis could be found to give each of the six factors specific differential weights, equal weights were used. Fortunately, with six components to the index, the weighting system is no longer so very crucial. Doubling the weights of any one or two of the components will not greatly affect the magnitude of the index numbers.[6]

[5] Teachers per 100 pupils in ADA and average teacher salary are usually expected to be highly correlated with the general level of expenditures. An analysis revealed that the correlation, while high, is far from perfect. It is + 0.71 in the first case and + 0.68 in the second case. Both are not very high. Thus, the inclusion of factors A and C in the scope and quality index appears warranted.

[6] This simplified index was subjected to a test which sheds some light on its reliability. A number of educators who are well acquainted with public schools of the St. Louis City-County area were interviewed separately and asked to rate the various school districts in terms of excellent, good, medium, poor and very poor. These ratings, when compared with

In summary, the working hypothesis includes population size (X_2); three sociological characteristics (X_3, X_4, and X_5), although X_4 is also a physical characteristic; one economic characteristic (X_6); and a simplified scope and quality index (X_7).[7]

What about the form of the functional relationship? In order to test the hypothesis that economies of scale are present, it was assumed that the net relation between per pupil expenditures and the number of pupils is U-shaped and that it can be approximated by a second degree parabola. All other relations were assumed to be linear. In line with these considerations, the working hypothesis took the following form:

$$X'_1 = f\ (X_2, X_2^2, X_3, X_4, X_5, X_6, X_7) \quad (1.2)$$

With the aid of multiple regression and correlation techniques, this working model was tested for the 27 school districts in the St. Louis City-County area with primary and secondary schools. Since testing involved the loss of eight degrees of freedom, it was thought desirable to work with as large a sample as possible. For this reason, data for two different periods, i.e., 1951-52 and 1954-55, with a two year interval between, were used. Since expenditures and their determinants increased over time at somewhat different rates in the different school districts, the cross section data pertaining to the two staggered years are devoid of any major serial correlation.

The following results were obtained for total current expenditures plus debt service (X_{1a}) and total current expenditures without debt service (X_{1b}), respectively, per pupil in ADA:

$$\begin{aligned} X'_{1a} = &-240.966 - \underset{(0.0916)}{0.00347}\ X_2 \\ &+ \underset{(0.0696)}{0.000000317}\ X_2^2 + \underset{(0.363)}{4.090}\ X_3 \\ &- \underset{(0.0253)}{0.0293}\ X_4 - \underset{(0.0253)}{0.0335}\ X_5 \\ &+ \underset{(0.679)}{0.0135}\ X_6 + \underset{(0.414)}{213.888}\ X_7.^8 \end{aligned} \quad (1.3)$$

The coefficient of multiple determination—R^2—is 0.85 and this coefficient adjusted for degrees of freedom lost—R^{+2}—is 0.82. It is highly significant at an α of 0.05. Thus, about 82 per cent of the variation in total current expenditures plus debt service per pupil in ADA is explainable in terms of these six stated independent variables, of which financial ability, service level and percentage of high school pupils are statistically significant.

The results excluding debt service were as follows:

$$\begin{aligned} X'_{1b} = &-26.956 - \underset{(0.0584)}{0.00181}\ X_2 \\ &+ \underset{(0.0412)}{0.0000000154}\ X_2^2 + \underset{(0.329)}{2.999}\ X_3 \\ &- \underset{(0.148)}{0.0198}\ X_4 - \underset{(0.131)}{0.143}\ X_5 \\ &+ \underset{(0.697)}{0.0116}\ X_6 + \underset{(0.375)}{156.40}\ X_7 \end{aligned} \quad (1.4)$$

---

the scope and quality index data, showed very close consistency. In no case was the school district with an index number above 1.0, i.e., average, given a subjective rating of poor or very poor, and vice versa. In the few cases with differences in the rating, the index number was equivalent to excellent and the subjective rating was good. Although this is a very simple validation procedure, it might well be that if there are inaccuracies in the index numbers, they are not in excess of from 5 to 10 per cent either way. To the extent that discrepancies exist, they are likely to be randomly distributed and no bias appears to have crept into the index.

[7] Another subindex tried was one reflecting average capital expenditure per pupil in ADA for the past four years. As was to be expected, a simple scatter diagram revealed a very high correlation between this factor and school population increases. This factor appears to measure primarily growth and not quality; and it was therefore discarded.

[8] The figures in parentheses are partial correlation coefficients. Since there are 54—8 or 46 degrees of freedom, the coefficient is statistically significant at an

R^2 = (0.84) and R^2 (adjusted as above) = (0.82) are highly significant at an α of 0.05.

Findings

What do these empirical results mean? Insofar as per pupil current education expenditures in the St. Louis City-County area in the early and middle 1950's are concerned, a district's financial ability to afford education (X_6), measured in terms of per pupil assessed valuation of real property, was by far the single most significant determinant. Additional evidence, to be offered below in Table I, further supports this finding. Other significant expenditure determinants, in their order of importance, were scope and quality of education (X_7) and primary-secondary school ratio (X_3).[9]

Actually, this formulation can help shed some light on the efficiency of the public schools, particularly if data for different years or areas are available for comparison. For obvious reasons—lack of measurability—the equations do not have an efficiency variable. But in case the coefficient of multiple correlation is high, i.e., the independent variables included in the equation explain much of the variation of the dependent variable, the presumption would be that much of the unexplained variation is related to efficiency. If this is true, and the net regression coefficient relating expenditures to scope and quality is significant, the magnitude of this coefficient indirectly testifies to the efficiency. Why? At a time when per capita expenditures are increasing and efforts are being made to raise the scope and quality of education, the school district that can make a given improvement at the lowest cost, holding virtually all other factors affecting expenditures constant, is most efficient. By comparing (expenditure-quality) net regression coefficients of different metropolitan areas, (preferably after standardizing them by dividing each by the appropriate standard deviation), some measure of efficiency differences could be obtained. Likewise, comparisons for different time periods would indicate temporal efficiency changes.

But perhaps the most important finding is the absence of significant economies of scale in the school districts of the St. Louis City-County area. As has been argued elsewhere, growth or consolidation alone are unlikely to have significant effects on per capita expenditures for local government services offered by horizontally integrated service plants such as schools.[10]

Income Elasticity of Public Education

How responsive are local and state government expenditures for public primary and secondary education to changes in personal income? Personal income appears closely correlated with assessed valuation of real property. Here is some evidence, which appears to warrant the use of the latter, which is much more readily quantified. The rank correlation coefficient, relating 1949 median

α of 0.05 in case it is larger than 0.28. Statistically significant regression coefficients have been underlined.

[9] The simple correlation coefficient between scope and quality of education on the one hand and per pupil assessed evaluation on the other is also of some interest. In a sense it is a measure of the relation between the school district's financial ability to afford education and the level of education. This coefficient turned out to be relatively low, i.e., +0.51; which means that school districts which can afford high quality schools do not necessarily provide them. Admittedly, the simple correlation coefficient does not adjust for other factors which could cause the partial correlation coefficient to be distinctly different.

[10] Werner Z. Hirsch, "Expenditure Implications of Metropolitan Growth and Consolidation", *The Review of Economics and Statistics*, 41 (August 1959).

income with 1954-55 per pupil assessed valuation of 10 of the districts about coterminous with municipal or census tract boundaries, is + 0.905. It is highly significant at an α of 0.05.

On the assumption that education expenditures roughly indicate the "amount" of education offered, income elasticity $= \frac{\partial X_1}{\partial X_6} \cdot \frac{\bar{X}_6}{\bar{X}_1}$ can be estimated with the aid of a modified equation 1.2, i.e., by dropping the quality variable, so that income and quality changes can both take place. Regression equations were fitted for the following seven dependent variables:

X_{1a}—total current expenditures plus debt service.

X_{1b}—total current expenditures without debt service.

X_{1c}—per pupil expenditures for general control, i.e., salaries for superintendent and his administrative assistants.

X_{1d}—per pupil expenditures for instruction, i.e., teachers' salaries and educational supplies.

X_{1e}—per pupil expenditures for auxiliary services, i.e., transportation costs, salaries of bus drivers, health services and cafeteria expenses.

X_{1f}—per pupil expenditures for plant operation and maintenance, i.e., salaries and custodians, supplies, utility costs and upkeep of buildings and grounds, and

X_{1g}—per pupil expenditures for fixed charges, i.e., rent, insurance and retirement contributions.

All seven regression equations are presented in Table I, and the net regression and income elasticity coefficients are summarized in Table II. Thus, for instance, during the early and middle 1950's in St. Louis, a one dollar increase in the average assessed valuation of real property per pupil in ADA was on the average associated with a 1.88 cent increase in total per pupil current expenditures (plus debt retirement) for public education. The corresponding income elasticity is + 0.56., i.e., as income increases by 1 per cent, expenditures for public education increase by merely 0.56 per cent. In both cases the effects of changes in the other independent variables included in the analysis is partialled out. Thus, the income elasticity for public education is distinctly below 1; it is inelastic. With but one exception, the income elasticity for instruction is lowest. The exception relates to fixed charges, where a low income elasticity is of little surprise. By definition these charges vary little with income. The fact that the income elasticity for instruction is only 0.43, is of great concern. As income increases, apparently relatively more will be spent for auxiliary services, plant maintenance and general control, than for instruction.

So that a better appreciation of the income elasticity for public education can be obtained, the income elasticity of fire protection and police protection, respectively, for the same period in St. Louis was computed. Income elasticity of fire protection is very high, i.e., 10.1, and that of police protection is 1.0 or unity. Thus, compared to fire and police protection, the income elasticity of education is very low indeed.[11]

The income elasticity of education found for the St. Louis area can be compared with that computed by Harvey E. Brazer for 40 large cities and their over-

[11] The high income elasticity of fire protection may reflect the fact that as people's incomes and wealth increase they are willing to see more spent for fire protection; otherwise, the insurance rate will have to be increased. Relatively few people insure against theft as compared to fire insurance, which may explain why there is no such pressure for better police protection.

TABLE I

LEAST SQUARES EXPENDITURE FUNCTIONS OF PUBLIC PRIMARY AND SECONDARY EDUCATION
ST. LOUIS CITY-COUNTY AREA, 1951-52 AND 1954-55

Per Pupil Expenditure	Y-intercept	X_2 Number of Pupils in ADA in Public Primary and Secondary Schools	X_3^2	X_3 High School Pupils in ADA as Per Cent of All Pupils in ADA	X_4 Number of Public School Pupils in ADA per Square Mile	X_5 Per Cent Increase in Public School Pupils in ADA	X_6 Average Assessed Valuation of Real Property per Pupil in ADA	R^2*
X_{1a}—Total Current plus Debt Service ..	-.313	.0188	-.000000131	6.306	-.0233	-.169	.0188	.80
		[2.41]	[2.62]	[4.33]	[0.949]	[0.866]	[4.23]	
X_{1b}—Total Current without Debt Service	33.373	.00841	-.000000106	4.650	-.0161	-.238	.0155	.81
		[2.47]	[2.64]	[3.96]	[0.812]	[1.51]	[14.55]	
X_{1c}—For General Control	6.850	-.000558	.00000000659	.0306	.000870	.000960	.000654	.57
		[1.97]	[1.97]	[0.326]	[0.523]	[0.0735]	[7.38]	
X_{1d}—For Instruction	-6.055	.00822	-.000000102	4.649	.00325	-.144	.00850	.72
		[3.06]	[3.19]	[5.02]	[0.208]	[1.16]	[10.10]	
X_{1e}—For Auxiliary Services	31.047	-.000255	.00000000030	-1.177	-.0178	-.0263	.00339	.67
		[0.188]	[0.0187]	[2.52]	[2.26]	[0.419]	[7.97]	
X_{1f}—For Plant Operation and Maintenance	2.615	.00103	-.0000000121	.834	-.000362	-.0747	.00249	.54
		[1.00]	[1.00]	[2.36]	[0.0606]	[1.58]	[7.76]	
X_{1g}—For Fixed Charges	3.314	.0000313	.000000000452	.148	-.000327	.00902	.000323	.44
		[0.158]	[0.194]	[2.16]	[0.285]	[0.987]	[5.85]	

* Figures in brackets are standard errors. Net regression coefficients and coefficients of multiple determination (adjusted for degrees of freedom lost) are significant at an α of 0.05 if they are underlined.

lying units of local government.[12] These data pertained to 1953, while median income for 1949 was used. The elasticity coefficient was calculated to be + 0.73. In addition, using state data, Solomon Fabricant has computed the 1942 income elasticity at + 0.78.[13]

A further look at the expenditure-number of pupils net regression coefficients offers some additional insight. If scope and quality are not explicitly introduced into the regression equation and held constant, significant regression coefficients relating per capita expenditures to size of district result. As a matter of fact, the total current per capita expenditures function under these conditions has a positive slope up to a point from which it declines. These results point to the importance of including scope and quality as a variable, where the presence or absence of economies of scale is to be studied.

IV. *Some Conclusions and Policy Implications*

To the extent that the St. Louis City-County area may be considered typical for urban America, and certain of the empirical findings can therefore have broader applications, the following conclusions suggest themselves:

The income elasticity of public education is quite low. People's attitudes toward public education and the existing tax system may be among the more important reasons. Especially low is the income elasticity of instruction. If we are to improve education and raise more funds, low income elasticities, particularly for instruction, could be a handicap.

In some quarters it has been suggested that wholesale consolidation of school districts into larger units will increase efficiency by benefiting from economies of scale. This study cannot find significant economies of scale and suggests that consolidation is unlikely to solve the fiscal problems of schools in urban America. Certainly, some rural school districts, and even a few urban ones, could make minor savings if they were big enough to afford more variety in high school offerings and more specialists. At least in urban districts, this can in part be accomplished by voluntary cooperation between districts. A number of districts can jointly hire a guidance counselor, music teacher, coach, etc. In addition, educational television and regular audiovisual aids from central libraries are becoming increasingly available.

TABLE II

PUBLIC EDUCATION EXPENDITURES
NET REGRESSION COEFFICIENTS AND INCOME* ELASTICITIES, ST. LOUIS CITY-COUNTY AREA
1951-52 and 1954-55

Services	Net Regression Coefficient between Expenditure and Income	Income Elasticity
Education		
Total current plus debt service	+0.0188	+ 0.557
Total current without debt service	+0.0155	+ 0.519
General control	+0.000654	+ 0.497
Instruction	+0.00850	+ 0.425
Auxiliary services ...	+0.00339	+ 1.147
Plant operation and maintenance	+0.00249	+ 0.5516
Fixed charges	+0.000323	+ 0.288
Fire Protection	+0.00242	+10.1
Police Protection	+0.0223	+ 0.98

* Since valuation of real property is highly correlated with income and information about it is much more readily available, the former is used for measurement.

[12] Harvey E. Brazer, *City Expenditures in the United States, Occasional Paper 66* (New York, National Bureau of Economic Research, Inc., 1959) p. 58.

[13] Solomon Fabricant, *The Trend of Government Activity in the United States Since 1900* (New York, National Bureau of Economic Research, Inc., 1952), p. 125.

These arrangements may be more desirable than large-scale consolidation, which often will tend to have serious side effects.

Very large local governments, such as very large school districts, are too far removed from the people; and often prove irresponsive to their needs and desires.[14] People tend to lose interest, and their attitude toward schools and their tax needs can become negative. Our public schools take much of their vigor from the countless men and women who are actively participating in their affairs — the board members, trustees, members of parent-teacher associations, etc. Local popular control and the active participation in school affairs by millions of private citizens can help keep alive a wholesome diversity in educational plans and practices. In this manner difference, experimentation and, thus, excellence can be encouraged.

However, there is one difference that we might not want to perpetuate. It is widely felt that, regardless of financial means, every child should be able to obtain a good education. Although we benefit from local control of our public schools, existing differences of wealth make it inadvisable to rely exclusively on local financing to obtain good education for all.

Ever since the early 1930's we have embraced the social philosophy that every person is entitled to a certain minimum income. This philosophy is incorporated in farm, labor, unemployment, and Social Security legislation, all of which provide floors below which income, wages or prices cannot fall. The responsibility of government to underwrite a floor has become a basic tenet of American capitalism. Wholesale school consolidation means equal education, i.e., not only a floor but also a ceiling. But equal income, wages, or prices are alien to our system.

If we agree that every citizen should benefit from at least a minimum education, which should be substantially better than that offered today in many districts, the tax base of entire metropolitan areas or even whole states might be pooled to permit the underwriting of a floor below which the scope and quality of public education would not be permitted to fall anywhere within the area. Once such a floor is established, it is up to the specific community, if it so wishes, to choose service levels for its schools which are above the prevailing floor, and tax themselves accordingly.

Various state programs designed to subsidize local school districts are a good beginning. But they are no more than a beginning. Most of them provide only a very low floor, and they rely mainly on per pupil subsidy payments instead of payments which are inversely related to the district's fiscal ability.[15]

While the solution of our education finance problems, to my mind, will come only with a more broadly based realization of the central role education plays in a democracy, a better understanding of the determinants of public education expenditures is also needed.

[14] An excellent discussion of this point is found in Lennox L. Moak, "Some Practical Obstacles in Modifying Governmental Structure to Meet Metropolitan Problems," *University of Pennsylvania Law Review*, 105 (February 1957) p. 611.

[15] There are signs that personal income in some states may be too low to underwrite high enough a floor, even if the people of the state make a major tax effort. (Laszlo Ecker-Racz, "A Foreign Scholar Ponders the 1957 Census of Governments," *National Tax Journal*, Vol. XII, No. 2 (June 1959). Under these circumstances, it might be desirable to agree on an acceptable minimum tax effort, measured in terms of state and local tax revenues per $1,000 of personal income. States which meet this requirement would then become eligible for federal aid to bring state per pupil expenditures to an agreed minimum national level.

CENTRALIZATION, ABILITY, AND EFFORT IN SCHOOL FINANCE

CHARLES E. RATLIFF, JR.*

Introduction

IN A STUDY of the centralization of expenditures for education in the state of North Carolina, certain relationships among centralization, ability, and effort for North Carolina and the four contiguous states were found.[1] For these five states (North Carolina, Georgia, South Carolina, Tennessee, and Virginia), there was an inverse relationship between the ability to support education and the effort being exerted. At the same time, there was a tendency for the states with the least ability to have the greatest degree of centralization of expenditures, which means, of course, that there was a positive relationship between the degree of centralization and effort. The purpose of this presentation is to compare the 48 states in the United States in 1955-56 to ascertain if those relationships exist for all the states taken as a whole.

Rankings of the States

Tables I, II, and III rank the states on the centralization of expenditures, ability to support public education, and effort to support public education, respectively. The centralization of expenditures (Table I) is measured by the source of revenue: the proportion of receipts from state and local taxation and appropriation received from the state.[2] The ability to support education (Table II) is indicated by relating personal income in the state to the public school educational task: personal income payments per pupil enrolled in public schools. The effort to support education (Table III) is indicated by the proportion of the state's personal income expended for education: the percentage of personal income payments spent on public school current expense items.[3]

Relationships

From Table IV, which shows the states' ranks on all three factors, it is seen that there is an inverse relationship between centralization and ability. The coefficient of rank correlation is $-.343$,[4]

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[1] See the author's study, *The Centralization of Governmental Expenditures for Education and Highways in North Carolina, 1929-1952* (Unpublished doctoral dissertation, Duke University, 1954), summarized in "The Centralization of Government Expenditures for Education and Highways in North Carolina," *National Tax Journal*, IX (September, 1956) pp. 268-77.

[2] State and local receipts from taxation and appropriation constitute the major source of school revenue: 91.1 per cent for the United States in 1955-56. Other sources include federal aid (as for vocational education and school lunches), income from permanent funds, and receipts from leases of school lands, tuition, and gifts. See U. S. Office of Education, "Statistics of State School Systems: 1955-56," *Biennial Survey of Education in the United States, 1954-56* (Washington: U. S. Government Printing Office, 1959) pp. 76-77.

[3] Rankings similar to these are calculated periodically by the Research Division of the National Education Association, but none was calculated for 1955-56, the year for which data is reported in the most recent *Biennial Survey of Education in the United States*.

[4] This is the coefficient suggested by Spearman.

TABLE I

CENTRALIZATION OF STATE AND LOCAL SCHOOL REVENUES, 1955–56
RANKED BY STATE

Rank	State	Per cent of total state and local revenues from state
1	Delaware	85.9%
2	Alabama	79.8
3	South Carolina	78.7
4	North Carolina	75.7
5	New Mexico	74.3
6	Georgia	71.3
7	Louisiana	71.2
8	Washington	65.7
9	Tennessee	64.0
10	West Virginia	62.7
11	Florida	57.8
12	Mississippi	57.4
13	Texas	56.0
14	Michigan	50.9
15	Nevada	49.2
16	Pennsylvania	48.4
17	Arkansas	47.7
18	California	43.6
19	Virginia	41.5
20	Missouri	40.9
21	Utah	40.3
22	Oklahoma	40.2
23	Minnesota	40.0
24	Kentucky	39.4
25	New York	37.9
26	Wyoming	37.0
27	Maryland	35.6
28	Indiana	34.7
29	Arizona	33.8
30	Oregon	32.8
31	Ohio	31.6
32	Connecticut	28.0
33	Maine	27.9
34	Vermont	27.8
35	Idaho	25.2
36	New Jersey	25.2
37	Illinois	24.9
38	North Dakota	23.9
39	Massachusetts	23.4
40	Kansas	20.3
41	Wisconsin	20.0
42	Montana	19.0
43	Rhode Island	17.7
44	Colorado	16.2
45	Iowa	14.0
46	South Dakota	7.1
47	New Hampshire	5.8
48	Nebraska	2.2

Source: Calculated from data in U. S. Office of Education, "Statistics of State School Systems: 1955–56," *Biennial Survey of Education in the United States, 1954–56* (Washington: U. S. Government Printing Office, 1959) pp. 74–75. Where the same percentage is shown for more than one state, the states are ranked on the basis of percentages before rounding.

TABLE II

PERSONAL INCOME PAYMENTS PER PUPIL ENROLLED IN PUBLIC SCHOOLS, 1955–56
RANKED BY STATE

Rank	State	Personal income per pupil enrolled
1	Delaware	$16,071
2	New York	14,793
3	Connecticut	14,296
4	New Jersey	14,285
5	Illinois	14,103
6	Rhode Island	13,784
7	Massachusetts	13,130
8	California	12,290
9	Pennsylvania	11,672
10	Michigan	11,523
11	Ohio	11,490
12	Nevada	11,104
13	Wisconsin	11,096
14	Maryland	11,006
15	New Hampshire	10,538
16	Missouri	10,208
17	Indiana	9,382
18	Washington	9,285
19	Oregon	9,269
20	Minnesota	9,179
21	Montana	9,022
22	Nebraska	8,536
23	Colorado	8,506
24	Florida	8,294
25	Maine	8,217
26	Wyoming	8,142
27	Texas	8,128
28	Vermont	7,966
29	Kansas	7,956
30	Iowa	7,734
31	Virginia	7,470
32	Arizona	7,320
33	North Dakota	6,874
34	Louisiana	6,652
35	Oklahoma	6,651
36	Kentucky	6,321
37	Idaho	6,320
38	South Dakota	6,282
39	Utah	6,253
40	New Mexico	6,236
41	Tennessee	5,758
42	Georgia	5,694
43	West Virginia	5,647
44	North Carolina	5,407
45	Alabama	5,056
46	South Carolina	4,623
47	Arkansas	4,617
48	Mississippi	3,886

Source: Personal income data (1955) from Robert E. Graham, Jr., "Regional Income Distribution in 1957," *Survey of Current Business*, XXXVIII (August, 1958) p. 13; enrollment data from U. S. Office of Education, "Statistics of State School Systems: 1955–56," *Biennial Survey of Education in the United States, 1954–56* (Washington: U. S. Government Printing Office, 1959) pp. 56–57.

TABLE III

PUBLIC SCHOOL CURRENT EXPENDITURES AS PER CENT OF PERSONAL INCOME, 1955–56
RANKED BY STATE

Rank	State	School expenditure as per cent of personal income
1	New Mexico	4.40%
2	South Dakota	4.30
3	North Dakota	3.86
4	Wyoming	3.85
5	Louisiana	3.76
6	Arizona	3.65
7	Idaho	3.51
8	Utah	3.51
9	Montana	3.50
10	South Carolina	3.48
11	Iowa	3.46
12	Oregon	3.39
13	Mississippi	3.38
14	Oklahoma	3.38
15	Alabama	3.28
16	Minnesota	3.26
17	Kansas	3.25
18	West Virginia	3.17
19	North Carolina	3.16
20	Washington	3.03
21	Colorado	3.02
22	Arkansas	2.99
23	Nebraska	2.99
24	Vermont	2.99
25	Tennessee	2.95
26	Georgia	2.94
27	Texas	2.84
28	Wisconsin	2.77
29	Florida	2.68
30	California	2.68
31	Michigan	2.65
32	Indiana	2.62
33	Nevada	2.61
34	Pennsylvania	2.59
35	Virginia	2.54
36	Maine	2.50
37	New York	2.47
38	New Hampshire	2.41
39	Maryland	2.39
40	Kentucky	2.38
41	New Jersey	2.37
42	Massachusetts	2.25
43	Ohio	2.23
44	Illinois	2.21
45	Missouri	2.20
46	Connecticut	2.15
47	Rhode Island	2.07
48	Delaware	2.00

Source: Personal income data, same as Table II; current expenditures, elementary and secondary schools, from U. S. Office of Education, "Statistics of State School Systems: 1955–56," *Biennial Survey of Education in the United States, 1954–56* (Washington: U. S. Government Printing Office, 1959) pp. 80–81.

TABLE IV

RANK OF THE STATES ON CENTRALIZATION, ABILITY, AND EFFORT, 1955–56

State	Rank		
	Centralization	Ability	Effort
Delaware	1	1	48
Alabama	2	45	15
South Carolina	3	46	10
North Carolina	4	44	19
New Mexico	5	40	1
Georgia	6	42	26
Louisiana	7	34	5
Washington	8	18	20
Tennessee	9	41	25
West Virginia	10	43	18
Florida	11	24	29
Mississippi	12	48	13
Texas	13	27	27
Michigan	14	10	31
Nevada	15	12	33
Pennsylvania	16	9	34
Arkansas	17	47	22
California	18	8	30
Virginia	19	31	35
Missouri	20	16	45
Utah	21	39	8
Oklahoma	22	35	14
Minnesota	23	20	16
Kentucky	24	36	40
New York	25	2	37
Wyoming	26	26	4
Maryland	27	14	39
Indiana	28	17	32
Arizona	29	32	6
Oregon	30	19	12
Ohio	31	11	43
Connecticut	32	3	46
Maine	33	25	36
Vermont	34	28	24
Idaho	35	37	7
New Jersey	36	4	41
Illinois	37	5	44
North Dakota	38	23	3
Massachusetts	39	7	42
Kansas	40	29	17
Wisconsin	41	13	28
Montana	42	21	9
Rhode Island	43	6	47
Colorado	44	33	21
Iowa	45	30	11
South Dakota	46	38	2
New Hampshire	47	15	38
Nebraska	48	22	23

Source: Tables I, II, and III.

which is significant at the .02 level.[5] If Delaware is excluded, the inverse relationship is considerably more marked.[6]

[5] $t = 2.476$.

[6] The coefficient of rank correlation is $-.431$; $t = 3.201$.

There is a very strong inverse relationship between ability and effort. The coefficient of rank correlation is −.698, which is highly significant.[7] In general, then, the states with the least ability are exerting the most effort, and vice versa. On the assumption that income is subject to the law of diminishing utility, the sacrifice in the low-income states is actually higher than is indicated by the per cent of income spent on education. The problem, of course, is that these states are faced with a relatively large educational task but have relatively low income with which to accomplish it.[8]

[7] t = 6.515, with a little more than half this value of t required for the correlation to be significant at the .001 level.

[8] See U. S. Office of Education, *Expenditures for Education at the Midcentury* (Washington: U. S. Government Printing Office, 1953) pp. 100-03, for a discussion of the factors affecting educational load: birth rates, proportion of population in the school-age range, private schools, etc. Note that all 13 of the southern states lying between the Potomac and the Rio Grande rank between 24 and 48 on ability. See Calvin B. Hoover and B. U. Ratchford, *Economic Resources and Policies of the South* (New York: The Macmillan Company, 1951) pp. 29-32, for a discussion of this problem relative to the southern states.

Since an inverse relationship exists between centralization and ability and also between ability and effort, a positive relationship between centralization and effort is expected. However, it is not significant, the coefficient of rank correlation being .083.[9]

Conclusion

Among the continental states the ones that are exerting the greatest effort to support public education have the least ability. And the states with the least ability tend to have the greatest degree of centralization of expenditures.

Perhaps this indicates that in those states where ability is lowest, or where the education task is most burdensome, the people are most willing to shift the duty of financing the schools to the state government. At the same time, the state governments in these states may feel the necessity of participating in school finance to a greater degree to assure a certain minimum of educational service.

[9] t = .178; significant at the .9 level. If Delaware is excluded, the coefficient of rank correlation is .154; t = 1.043; significant at the .4 level.

ASSET REVALUATION AND INCOME TAXATION IN JAPAN

SIDNEY DAVIDSON AND YASUKICHI YASUBA *

THE subject of depreciation has held an important place in the discussions and writings on tax reform and fiscal policy in the last two decades. Inflationary price movements that made recorded valuation of assets meaningless in some countries and a general desire to accelerate the rate of capital formation have combined to focus attention on the depreciation problem. Almost all nations employing the income tax have substantially altered the depreciation provisions of their tax laws to deal with one or the other, or sometimes both, of these problems since World War II.

The accelerated depreciation provisions of the United States Tax Code of 1954 permitted a significant change in the timing of depreciation charges for tax purposes in this country. The change was designed at least in part to speed up the rate of investment.[1] To date no general revision of the American tax code to take cognizance of price level changes has been adopted. Suggestions that the tax regulations be amended so that depreciation charges may be based on the current replacement cost of property being used continue to be offered regularly.[2] In many of these proposals Japan is cited as the country that has made the most extensive changes in its tax laws to deal with the problem of rising prices.[3]

In this article the Japanese legal enactments on asset revaluation will be summarized and the reasons for their limited success analyzed. Consideration will be given to the special features of the Japanese taxation system and corporate financial practices as well as to the general problem of asset revaluation in connection with income taxation.

The Economic Background

During and immediately after World War II, Japan experienced a wild inflation. As Table I shows, the Tokyo wholesale price index doubled between 1940 and 1945. After the end of the war as more and more prices were decontrolled, the price level rose still more

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[1] E. Cary Brown, "New Depreciation Policy Under the Income Tax: An Economic Analysis," *National Tax Journal*, Vol. VIII, No. 1 (March 1955), p. 82 and p. 95.

[2] Cf., for example, Hearings before the Ways and Means Committee, House of Representatives, 85th Congress, Second Session (1958), Part 1, pp. 949-1015 and 1017-1021; Herbert T. McAnly, "Recognizing Deficiency of Depreciation Based on Historical Costs," *National Association of Accountants Bulletin*, Vol. XXXIX, No. 6 (February 1958), pp. 5-14; and Paul Grady, "Economic Depreciation in Income Taxation and Accounting," *Journal of Accountancy*, Vol. 107, No. 4 (April 1959), pp. 54-60.

[3] McAnly, *op. cit.* and testimony of Maurice E. Peloubet in Ways and Means Committee Hearings cited.

rapidly. Prices increased fourfold from 1945 to 1946 and then tripled again in the following year. In 1949 the price index was more than 200 times as high as in 1935 and by 1951 more than 340 times as high. The extraordinary rise of prices raised many economic problems. Some of these may be particularly noted in connection with the question of asset revaluation and income taxation.

TABLE I

TOKYO WHOLESALE PRICE INDEX
(1934–36 = 100)

Year	Price index	Year	Price index
1935	99.4	1948	12,792.6
1940	164.1	1949	20,876.4
1945	350.3	1950	24,680.7
1946	1,627.1	1951	34,253.1
1947	4,815.2	1956	35,796.7

Source: Statistics Bureau, Bank of Japan.

By 1947 or 1948 the original cost of buildings and equipment which had been purchased more than a few years before had become a minor fraction of the replacement cost of those assets. However, a provision in the commercial code which prohibited the writing up of the book value of corporate assets above the cost of acquisition and a tax regulation that imposed an income tax on any asset write-up effectively combined to prevent the revision of book values. Depreciation charges in financial reports and in tax returns were thus based on the nominal original cost valuation of the assets. For those firms with significant amounts of depreciation expense, profits were inflated to a substantial degree and income tax at a rate exceeding 50 per cent had to be paid on what might appropriately be viewed as a recovery of real capital.

Indices such as the profit-capital ratio and the dividend-capital ratio have traditionally been the means of evaluating corporate performance and guiding action by investors in Japan. These indices were particularly affected by asset undervaluation. As the economy recovered from the postwar chaos, many firms reported annual profit-capital ratios in excess of 100 per cent. Nevertheless no alternative measures of a firm's operations were developed and unadjusted profit ratios continued to be used.[4] Even when the financial reports spoke of undervalued assets and specific estimates of their amounts were made, these figures were seldom incorporated in the calculation of the profit-capital ratio.

A pressing taxation problem would arise when an older asset was sold at an inflated price. The difference between depreciated acquisition cost and the selling price was treated as an ordinary capital gain and the income tax was imposed on it. There were many complaints that this " capital gain " did not represent any increase in purchasing power and should not be taxed.

These were the problems which called for legislation to make an adjustment possible. As early as 1947 some economists and business men suggested the necessity of revaluation but, while inflation was rampant and the future of the economy was uncertain, no action was taken. During 1948 specific proposals were developed and in January 1949 Zeisei Shingikai (Advisory Council for Taxation) presented its proposal. Fixed assets and land could be revalued as of June 30, 1949. The maximum appraisal valuation would be equal to:

$$\frac{1}{2}\left(\frac{\text{the current general price index}}{\text{the general price index in the year of acquisition}}\right) \times \text{book value at the date of revaluation.}$$

The firm could set the revaluation figures at any amount between book value and this maximum amount. A tax of 20 per cent to 30 per cent was to be levied on the amount of the asset write-up.[5]

The Ministry of Finance began to prepare a bill along these lines when it became known that upon the request of the Supreme Commander of the Allied Powers, a group of American economists and tax specialists would visit Japan and make recommendations on revision of the entire tax system. The Ministry, therefore, decided to wait for these recommendations. The tax mission headed by Professor Shoup of Columbia University spent several months in Japan and its report was published in September, 1949. The major features of the Shoup Mission recommendations concerning revaluation were:

1. All depreciable assets and land were to be revalued as of July 1, 1949, except for farm land for which the revaluation date was to be April 1, 1952. For those taxpayers who did not revalue their assets by the time specified, the Ministry of Finance would set a revaluation amount.

2. The reappraisal value, except that for farm land, was to be determined by multiplying the cost of acquisition, less accumulated depreciation, by the ratio of a general price index at July 1, 1949, to the corresponding index at the original date of acquisition.

3. A revaluation tax of 6 per cent was to be imposed on the write-up. The tax on the write-up of depreciable assets owned by corporations was to be payable in three years; one-half in the first year and one-fourth in each of the next two years. Individuals were to pay the tax on the write-up of depreciable assets in annual installments equal to 6 per cent of the depreciation on the revaluation write-up. With respect to non-depreciable assets the tax would not become payable until they were sold.

4. The revaluation gain was to be set aside as a special reserve on the balance sheet. No distribution from nor capitalization of this reserve was to be allowed until five years later, when the situation would be reviewed to determine what to do.[6]

The proposals concerning revaluation met a mixed reaction from Japanese businessmen. Although revaluation itself was welcomed, there were several points about which many businessmen were not happy. The recommendation of a 6 per cent tax on revaluation write-ups, while it might be favorably compared with the Zeisei Shingikai's plan, was still burdensome. The compulsory nature of revaluation in the Shoup report seemed unrealistic and impracticable under the circumstance in which many firms would have reported losses from operations as the result of revaluation. The provision which required revaluation gains to be set aside as a special reserve for five years was also disturbing to a large segment of the business community. Thus it was reported that "business was not too pleased with the recommendation."[7]

[4] For example, a director of a large corporation said in *Toyo Keizai Shimpo* (The original Japanese edition of the Oriental Economist), No. 2802 (Dec. 2, 1950), p. 59, "People tend to evaluate a firm from its dividend-capital ratio rather than the amount of dividend."

[5] The Ministry of Finance, *Shisan-Saibyoka-Ho Kaisetsu* (Commentary on the Assets Revaluation Law), Tokyo, 1951, pp. 1-3.

[6] *Report on Japanese Taxation by the Shoup Mission*, Tokyo, 1949, pp. 123-131 and Appendix C.

[7] *Ekonomisuto*, Vol. 27, No. 31 (Nov. 1, 1949), p. 20. See also Kigyo Kenkyu-kai, ed., *Kigyo to Zeisei Kaikaku* (Business Enterprise and Tax Reform), Tokyo, 1950, pp. 45-47, 58.

The stock market also took it as mildly bad news.[8] Communists attacked the proposal bitterly as a part of a system of taxation to " benefit millionaires and big capitalists." [9]

The Revaluation Law of 1950 and the 1951 Amendment

Early in 1950 The Assets Revaluation Law passed the Diet. The measure contained almost all of the major points in the Shoup recommendation, except that it made revaluation optional. Since the law sought to rationalize business accounting as well as to achieve fairness of taxes, not only depreciable assets but many non-depreciable assets such as land, trees, animals, antiques and corporate shares[10] were to be revalued. Indeed, practically all durable assets were included[11] whether owned by individuals or by juridical persons.[12]

Assets were broadly classified into depreciable and non-depreciable categories. In the case of individuals, the depreciable assets were to be revalued, if at all, in 1950 and the non-depreciable ones were to be deemed revalued as of 1950 only when they were sold or donated. On the other hand juridical persons were to revalue all assets in 1950 if they were to be revalued at all. In this connection it may be noticed that the revaluation was meant to be a once and for all measure.[13]

The extent of revaluation within the maximum limit was completely optional with the owner of the assets. Since the unit of revaluation was a single asset, the owner could revalue a certain asset to the maximum, another to a lesser extent, and leave another not revalued at all. The maximum reappraisal value was computed by multiplying the book value[14] of the asset as of January 1, 1950 by the ratio of a price index of 1949 to that of the year when the asset was acquired. The relationship is shown by the following formula:

$$M = C(1-d)^n \frac{P_1}{P_2}$$

Where M = the maximum reappraisal value
C = the original cost
d = annual depreciation rate given according to the legally determined life of the asset
n = the number of years between the year of acquisition and 1949 including the first and the last
P_1 = price index for 1949
P_2 = price index for the year when the asset was bought.

[8] *Toyo Keizai Shimpo*, No. 2391 (Sept. 24, 1949), p. 4.

[9] *Akahata* (official Communist newspaper), August 31, 1949.

[10] Shares were excluded in the second and third revaluations.

[11] The assets excluded were cash, bank deposits, loans, securities other than shares, inventories, and necessaries of life owned by individuals.

[12] The private juridical persons which were subject to the Assets Revaluation Law can be classified into *Koeki-Hojin* (non-profit organizations) and *Eiri-Hojin* (profit-seeking groups). The latter consists of *Kabushiki-Kaisha* (corporation), *Gomei-Kaisha* (general partnership), *Goshi-Kaisha* (limited partnership) and *Yugen-Kaisha* which literally means a company with limited liability. The last mentioned is of a mixed character. It enjoys limited liability like a corporation, but its shares are not freely transferable. In 1950, there were 154,497 corporations, 10,276 general partnerships, 28,402 limited partnerships and 45,306 *Yugen-Kaishas*. *Kaisha Nenkan* (Company Annual), Tokyo, 1954, p. 31.

[13] The Ministry of Finance, *op. cit.*, p. 8.

[14] According to the Japanese Income Tax Laws prior to 1950, the declining balance method was used for tangible assets and the straight line method for intangible assets. But in computing the book value in this case, only the declining balance method was to be used. When the book value thus computed was lower than 10 per cent of the original cost, the computed value, rather than the 10 per cent up to which depreciation was legally permitted, was used as the base.

In the case of land and other non-depreciable assets the price ratio was applied directly to the original cost.

Different price indices were used in computing the reappraisal maxima for different kinds of assets. For depreciable assets the Bank of Japan Tokyo Wholesale Price Index was used. In recognition of the fact that rent was controlled, the Kangyo Bank Urban Land Price Index was adopted for land.[15] For other assets the Bureau of Statistics Consumer Price Index was applied in principle.

minus book value immediately before revaluation) was to be set aside as a "revaluation reserve." The Shoup Mission had recommended that the write-ups should be frozen for five years in the form of this special reserve account. The law was a little less stringent than the Shoup recommendation. It provided that 75 per cent of the gain, after deducting revaluation taxes, could be capitalized after two years had passed. The technical procedure of the capitalization was specified by a separate law enacted later.[16]

TABLE II

SOME EXAMPLES OF MAXIMUM REAPPRAISAL VALUES FOR DEPRECIABLE ASSETS
(FIRST REVALUATION)
Asset cost ¥1.00 when acquired

Year of acquisition	Estimated life, years	Annual depreciation rate, declining balance method	Legal book value in 1950 $C(1-d)^n$	Price ratio	Maximum reappraisal value
1930	20	.109	0.099	229	22
(Years in use = 20)	50	.045	0.398	"	91
1940	10	.206	0.099	123	12
(Years in use = 10)	20	.109	0.315	"	38
	50	.045	0.631	"	77
1945 (Jan.–Mar.)	10	.206	0.315	79	24
(Years in use = 5)	20	.109	0.561	"	44
	50	.045	0.794	"	62

Some examples of the revaluation maxima are shown in Table II. The Ministry of Finance prepared a table of multiples by the year of acquisition and the service life of the asset. Therefore, the owner of an asset did not have to go through the computations. He could pick the relevant multiple from the table and apply it to the original cost of the asset.

In the case of juridical persons, the revaluation gain (revaluation amount

In the case of individuals, the revaluation gain on the depreciable assets was defined somewhat differently. Since most individuals did not keep good records, book value was thought to be inappropriate as the basis for computing the gain. Thus, the gain was defined as the difference between the revaluation amount and the cost of the asset.

The question of the taxability of the revaluation gain was the most thorny problem confronting the lawmakers. The Shoup Report, after a lengthy discussion of the question, had recom-

[15] Since this index only extended back to 1936, the National Farm Land Price Index of the Kangyo Bank was used for the period 1913-1935. Before 1913 the Bank of Japan Tokyo Wholesale Price Index was used.

[16] A Law Concerning Capitalization of the Revaluation Reserve, 1951.

mended a tax of 6 per cent on the write-up stating " all we can do is recommend a compromise that will avoid the worst injustices and retain most of the anticipated economic advantages." [17] The Revaluation Law adopted the recommendation for a 6 per cent tax. This tax on the write-up of depreciable assets was to be paid in three years in the case of juridical persons and in five years in the case of individuals.[18] Additional deferment was permitted if the taxpayer kept his books according to the method prescribed in the Income Tax Law. The tax on other kinds of assets was to be paid when the assets were sold or donated, but not later than 1954 if they were owned by a juridical person.

The guiding concept in determining deferrals was that the revaluation should not increase the amount of national income taxes paid in any year. For example, in the case of juridical persons, the maximum amount of revaluation tax to be paid in one year was 35 per cent (the national income tax rate) of the additional depreciation resulting from revaluation.

Response to the revaluation act was not as enthusiastic as the Government had hoped. Of the 166,122 juridical persons filing reports concerning revaluation,[19] 32,271 revalued their assets. Small companies capitalized at less than 1 million yen scarcely revalued at all. Only about half of the medium sized companies with capitalization between 10 million yen and 20 million yen revalued their assets. Large corporations participated in revaluation to a greater extent, with the result that total book value of assets after revaluation was 65 per cent of the total revaluation maximum.[20]

This response was discouraging, but the Ministry of Finance thought that it might be due to the poor timing of the measure.[21] In the first half of 1950 Japan experienced its first postwar recession. Many business firms, particularly the smaller ones, did not feel in a a position to evaluate the benefits and disadvantages from revaluation in the light of the uncertainty as to future economic conditions. Many firms felt that they would not be able to endure the "burden" of reporting increased depreciation as well as the revaluation and fixed asset taxes.[22]

With the outbreak of the Korean War in June 1950, the Japanese economy recovered its prosperity. The Ministry of Finance thought that this would be an appropriate time to renew the possibility of revaluation, since it felt that " most firms are sure that they can do it all right this time with increased earning power." [23] Thus an

[17] *Shoup Mission Report, op. cit.*, p. 125. While opposed in principle to including the write-up in taxable income, the mission noted that some tax payers had already paid the income taxes on " paper " gains when they had sold their assets. On the other hand, it was recognized that tax enforcement in the postwar years was erratic and loose.

[18] Non-profit organizations were, of course, exempted from the revaluation tax.

[19] Juridical persons, other than certain specifically designated classes, were required to file a report whether or not they revalued. At this time there were 213,556 ordinary juridical persons in Japan. Most firms which did not report were either new companies or special companies which were not covered by the law. *Toyo Keizai Shimpo*, No. 2607 (Jan. 2, 1954), p. 88.

[20] Ministry of Finance, *Shimpan Zei no Jiten* (Dictionary of Taxes), Rev. Ed., Tokyo, 1955, p. 272. *Kokuzei-cho Jigyo Nempo-sho, Showa 24, 25, 26 Nendo* (Annual Report of the National Tax Bureau, 1949, 50, and 51), Tokyo, 1952, p. 210.

[21] *The Oriental Economist*, Vol. XXII, No. 527 (Sept. 1954), p. 437. *Toyo Keizai Shimpo*, No. 2457 (Jan. 27, 1951), p. 37.

[22] Kigyo Kenkyu-kai, *op. cit.*, pp. 46-47.

[23] *Toyo Keizai Shimpo*, No. 2457 (Jan. 27, 1951), p. 37.

amendment to the first revaluation law was adopted in 1951, providing for the effective date of revaluation to be 1951. The major provisions were left unaltered, for the objective of the so-called "second revaluation" was "to operate another bus for those who missed the previous one."[24] Even though prices had gone up considerably, the same tables of multiples were used. The only differences worth noting are the exclusion of shares from the list of assets to be revalued and a provision to move forward the date from which companies were allowed to capitalize the write-up.

Despite the optimism of the Ministry of Finance, the results were less impressive than in the first revaluation. Only 4,301 additional companies revalued, and the total amount of write-up was a meager 98 billion yen as against 628 billion yen in the first revaluation.[25] The ratio of total book-value after revaluation to the maximum revaluation amount was raised to 72 per cent.[26]

There was considerable grumbling about the burden of the revaluation tax and the increased fixed assets tax. However, when the other side of the shield, the saving in income taxes, is taken into account revaluation would seem to be beneficial for almost all depreciable assets.

As a result of revaluation a firm could take greater depreciation deductions on its tax return and hence pay lesser amounts of income tax. In 1950 the rate of the national juridical person income tax was 35 per cent. In addition to this, a company was subject to prefectural and local taxes, of which the enterprise tax (standard rate 12 per cent) and the city-town-village tax (standard rate 15 per cent of the juridical person income tax, or 5.25 per cent of income) were proportional to income. Thus, if standard rates were used, revaluation meant a tax saving each year of 52.25 per cent of the increase in the depreciation deduction. However, the firm was also subject to other kinds of taxes, the amount of which would increase as a result of revaluation. First, of course, there was the revaluation tax of 6 per cent of the write-up, payable in three years: one half in the first year and one quarter each in the next two years. (Spreading the payments over a five year period was possible if the firm complied with certain special requirements.) Second, the company had to pay an increased amount in fixed-assets tax (the standard rate 1.6 per cent) based on the new assessment of its assets. The Local Taxes Law provides for an assessment of fixed assets in terms of their market value as of January 1st of each year, but enforcement is not rigorous and assets were ordinarily undervalued. Since book value was the minimum figure at which an asset might be appraised for fixed-assets tax purposes, revaluation usually meant an increase in the fixed-assets tax.

Table III shows the effect of revaluation on total taxes paid by the firm in the first, second, and fourth years following revaluation. The results of the third year would be approximately the same (slightly less favorable) as those of the second year. All the years following the fourth year would show the same general results as that year except

[24] *Ibid.*, p. 37.

[25] *Zei no Jiten*, p. 272. *Toyo Keizai Shimpo*, No. 2802 (Nov. 2, 1957), p. 62.

[26] Kokuzei-cho, *op. cit.*, p. 210.

TABLE III

EFFECT OF REVALUATION ON TAXES PAID IN SPECIFIC YEARS

Year of acquisition		1930			1940				1945			
Service life (years)		20	30	50	10	20	30	50	10	20	30	50
First year following revaluation												
Income taxes	(−)	¥1.25	¥1.89	¥2.13	¥1.29	¥2.15	¥2.19	¥1.80	¥2.55	¥2.47	¥2.02	¥1.44
Revaluation tax	(+)	0.66	1.46	2.72	0.36	1.13	1.70	2.29	0.71	1.30	1.57	1.84
Fixed-assets tax	(+)	0.35	0.78	1.45	0.19	0.60	0.90	1.22	0.38	0.70	0.84	0.98
Net effect		−0.24	+0.35	+2.04	−0.74	−0.42	+0.41	+1.71	−1.46	−0.47	+0.39	+1.38
Second year following revaluation												
Income taxes	(−)	1.12	1.75	2.03	1.03	1.91	2.02	1.71	2.02	2.20	1.87	1.37
Revaluation tax	(+)	0.33	0.73	1.36	0.18	0.57	0.85	1.15	0.36	0.65	0.78	0.92
Fixed-assets tax	(+)	0.31	0.72	1.38	0.15	0.54	0.84	1.17	0.30	0.62	0.78	0.94
Net effect		−0.48	−0.30	+0.71	−0.70	−0.80	−0.33	+0.61	−1.36	−0.93	−0.31	+0.49
Fourth year following revaluation												
Income taxes	(−)	0.88	1.50	1.86	0.65	1.52	1.74	1.56	1.28	1.75	1.61	1.25
Fixed-assets tax	(+)	0.25	0.61	1.26	0.09	0.43	0.72	1.06	0.19	0.49	0.66	0.85
Net effect		−0.63	−0.89	−0.60	−0.56	−1.09	−1.02	−0.50	−1.09	−1.26	−0.95	−0.40

Note: 1. The original cost of each asset is assumed to be ¥1 and revaluation to the maximum is assumed.
2. The declining balance method is used for depreciation.
3. It is assumed that book value is used as appraisal value for fixed-assets tax purposes.

that the net effect would tend to be reduced in size from year to year.

For assets with estimated lives of ten and twenty years there would be tax savings in every year following revaluation. Assets with thirty year lives would produce higher tax payments in the first year after revaluation but this would quickly be recouped in the second and third years. Revaluation would produce higher taxes for assets of a fifty year life in each of the first three years when the revaluation tax was being paid but in all years thereafter taxes would be lower. Practically all assets except buildings, dams, and the like have service lives prescribed by the tax code of not more than thirty years.

TABLE IV

EFFECT OF REVALUATION ON PRESENT VALUE OF TAXES PAID OVER LIFE OF ASSETS
Discount rate = 10%

Life of asset	Aggregate net benefit discounted
10	0.273 of revaluation gain
20	0.139 of revaluation gain
30	0.087 of revaluation gain
50	0.001 of revaluation gain

Amounts were calculated as follows:

When G = revaluation gain
d = depreciation rate, as shown in Table II
i = income tax rate (52.25 per cent)
a = asset tax rate (1.6 per cent)
r = discount rate (10 per cent assumed)
B_t = net benefit in year t, discounted, excluding the revaluation tax
R = present value of the revaluation tax
AB = aggregate benefit from revaluation

$$B_1 = G(di - a)$$

$$B_2 = \frac{G(1-d)(di-a)}{1+r}$$

$$B_3 = G(di-a)\left(\frac{1-d}{1+r}\right)^2$$

$$B_n = G(di-a)\left(\frac{1-d}{1+r}\right)^{n-1}$$

$$\sum_{t=1}^{n} B_t = \frac{G(di-a)\left[\left(\frac{1-d}{1+r}\right)^n - 1\right]}{\frac{1-d}{1+r} - 1}$$

$$= \frac{G(di-a)(1+r)\left[1-\left(\frac{1-d}{1+r}\right)^n\right]}{d+r}$$

$$\lim_{n\to\infty} \sum_{t=1}^{n} B_t = \frac{G(di-a)(1+r)}{d+r}$$

$$R = \left(.03 + \frac{.015}{1+r} + \frac{.015}{(1+r)^2}\right)G$$

$$AB = G\left[\frac{(di-a)(1+r)}{d+r} - \left(.03 + \frac{.015}{1+r} + \frac{.015}{(1+r)^2}\right)\right]$$

The aggregate effect of revaluation upon taxes paid over the life of the assets is indicated for assets of varying lives in Table IV. In that table annual tax increments or savings are discounted to the present at a 10 per cent discount rate. The table shows that for all assets there is an aggregate benefit from revaluation, although for assets with a life of fifty years the benefit is very small. At lower discount rates, the gains would, of course, be greater. Both Tables III and IV assume that the entire revaluation tax would be paid in the first three years. If a company were able to take advantage of the provisions allowing a five year spread of the revaluation tax, and most large firms could, the advantages of revaluation would be even greater. On balance it would appear that revaluation should have been beneficial in the case of almost all depreciable assets.

These tax-saving effects have been based on an assumption that the firm would be making large enough profits to enjoy the full benefits of decreased income taxes. If a company anticipated losses and relatively small profits for many years to come even without revaluation, revaluation would not mean much more than the payment of the revaluation tax and the increased fixed-

assets tax.[27] This consideration is particularly important in the case of small family type companies many of which choose to report little, if any, profit and to pay out most of residual earnings in the form of wages to family employees in order to reduce total income taxes. This factor does much to explain the relatively poor acceptance of the revaluation concept by smaller enterprises as shown in Table V.

It is widely believed that the emphasis placed on the profit-capital ratio was a deterrent to revaluation. This ratio would decrease sharply as a result of revaluation, since the reported profits after tax would decline by the total amount of the revaluation tax, the increment in the fixed-assets tax, and 47¾ per cent (one minus the 52¼ per cent income tax saving) of the increase in depreciation charges.[28] If the revaluation gain were capitalized, the numerator of the fraction would also be increased, producing a double barreled effect upon the ratio. However, the substantial acceptance of revaluation by firms with a capitalization of over 100 million yen, shown in Table V, may indicate that this factor was not as important as many believed it would be.

Finally, it should be noted that an additional deterring factor was the treatment prescribed for non-depreciable assets. Unlike the results for depreciable assets, owners of non-depreciable assets would gain nothing from revaluation until the assets were sold, but would lose through payment of the revaluation tax and increased fixed-assets tax. Therefore, the less complete acceptance of revaluation for non-depreciable assets was only natural. According to a report by the National Tax Bureau, the ratio of the actual revaluation amount to the maximum revaluation value was 67.9 per cent for depreciable assets and 49.6 per cent for non-depreciable assets in the first revaluation. This factor was not too important, however, since non-depreciable assets represented only 4.1 per cent of total assets.[29]

TABLE V

REVALUATION IN 1950 AND 1951 BY SIZE OF FIRM

Capitalization (million yen)	No. of firms reporting	Maximum revaluation amount (million yen)	Actual revaluation amount (million yen)	Ratio of actual to maximum
Under 1	144,433	139,552	79,874	57.2%
1–10	19,727	199,944	125,653	62.8
10–100	1,460	235,507	144,413	61.5
Over 100	302	768,036	628,593	81.8

Source: *Toyo Keizai Shimpo*, No. 2607 (January 2, 1954), p. 89.

[27] The Japanese Juridical Person Income Tax Laws allowed a five-year carry forward and one year carry back of losses, however. If the unfavorable profit expectation was of a strictly temporary nature, the tax saving would be realized when the company earned larger profits.

[28] Minomatsu Izumi, "Dai-sanji Shisan Saihyoka ni tsuite" (On the Third Assets Revaluation), *Kigyo Kaikei* (Business Accounting), Vol. 5, No. 4 (April 1953), p. 99, says: "In the modern situation in which many of the managers were salaried employees, there was a tendency for managers to try to maintain the profit on the books . . . rather than to carry out revaluation, take ample depreciation charges and, thereby, make the foundation of the company stronger."

[29] *Kokuzeicho Dai-76-kai Tokei Nempo-sho, Showa 26-nendo* (Statistical Yearbook of the National Tax Bureau, 1951), Tokyo, 1952, pp. 184-5.

The 1953 Amendment

By 1953, prices, particularly land prices, had gone up considerably and the so-called third revaluation was enacted. The provisions were basically the same as those in the previous revaluations. Since prices had gone up 160 per cent in land, 20 per cent in consumer goods and 50 per cent in wholesale transactions, the maximum amounts were revised accordingly. The capitalization of the gain was made still easier and so was the payment of the tax. Nine-tenths, instead of three-fourths, of the revaluation reserve (less the revaluation tax due) could be capitalized immediately. Upon the payment of the tax all the reserve could be capitalized. The revaluation tax on the juridical person's depreciable assets was made payable in five years in equal installments. The tax on the non-depreciable assets which were owned by juridical persons and which had not been sold after five years could now be paid in three years thereafter.

The response was again disappointing. By the end of 1953, only 1,400 companies had revalued. The total amount of write-ups was barely 80 billion yen.[30]

The 1954 Revaluation Law

The limited success of voluntary revaluation was apparent, and in 1954 the government decided to make revaluation compulsory. In that year the "Special Law Concerning Revaluation for the Purpose of Replenishing Corporate Assets" was passed. The law was directly concerned only with depreciable assets of corporations with capitalizations of 50 million yen or greater, or corporations with capitalizations between 30 and 50 million yen and with depreciable assets whose maximum reappraisal amount was 100 million yen or greater.[31]

Affected corporations were required to make a revaluation in an amount equal to at least 80 per cent of the maximum valuation calculated under the terms of the 1953 amendment. If the corporation failed to comply, the directors could be fined up to 300,000 yen. Moreover, a non-complying corporation would not be allowed to declare annual dividends exceeding 15 per cent on capital for the following five years.

The major objective of the law was to facilitate the replacement of corporate assets by requiring corporations to charge sufficient depreciation in their records. An auxiliary purpose was to encourage realistic and uniform financial reporting. To help secure these goals and to compensate for the compulsory nature of the revaluation, the revaluation tax rate was cut drastically. The general goal was to free from taxation completely that portion of the write-up originating from the compulsory revaluation (i.e., write-up in excess of the amount that could have been recognized in 1951) and to cut the rate in half for the remaining part of the write-up. Thus the law levied a 3 per cent tax on an amount equal to the maximum amount of the first revaluation less the sum of the book-value before the present revaluation plus the depreciation on the maximum revaluation amount from 1950 to 1954; the remainder of the revaluation gain was exempted from tax altogether. As an alternative, the excess of 65 per cent of the 1954 revaluation maximum over the

[30] *Zei no Jiten*, p. 273.

[31] The benefits of the law could be enjoyed by other juridical persons and individuals, but they were not "compelled" to comply.

book-value before revaluation might be assumed to be the part of the write-up originating from the 1950 revaluation and to be taxed at 3 per cent; the remainder of the write-up would be exempt from tax. To offer some solace to the corporations which had revalued in 1950 and 1951, the part of their revaluation tax which was yet to be paid was cut in half. For firms which had revalued voluntarily under the 1953 law, the tax was to be recomputed according to the present law, and in the case of overpayment reimbursement was to be made.

To encourage hesitating companies further the old assessment was to be used for three years as the basis for imposing the fixed-assets tax even though book value on the financial records now exceeded the assessment. Corporations that kept their financial records according to the income tax laws were assured that payment of national taxes, as far as depreciable assets were concerned, would not be increased because of revaluation under any circumstances.

The semi-compulsory character of the new law was not limited to revaluation itself. The prohibition of annual dividends in excess of 15 per cent on capital applied also when the depreciation deduction on a firm's tax return was less than 90 per cent of the legal maximum. It also applied when the corporation had transferred less than 30 per cent of the revaluation reserve to the ordinary capital account.

This act was largely successful as far as revaluation was concerned. Of 1866 corporations of which revaluation was required, 1731 had revalued by March 31, 1955. In all, the total reappraisal values of those juridical persons amounted to 2,082 billion yen against a total maximum of 2,217 billion yen or about 94 per cent.[32]

In May, 1957, a law was enacted to facilitate revaluation of the depreciable assets owned by smaller businesses which had not been covered by the compulsory 1954 act. The method of revaluation was basically the same as that in the 1954 law except that the rate of revaluation tax was a flat 1.5 per cent. The same maximum reappraisal values were used, although depreciation charges since 1953 were to be subtracted from these figures. By the end of June, 1958, which was the dead-line, 4820 firms filed a return. The total amount of write-ups was 14 billion yen and the ratio of the book value after revaluation to the maximum value *for these firms* was 88.6 per cent.[33]

The one major problem left was that of the disposition of the revaluation reserve. A normal treatment would probably call for capitalization of the reserve, either by increasing the par value of shares outstanding or by issuance of additional shares to existing stockholders (a stock dividend). Under the special circumstances, though, in which the profit-capital ratio and the dividend-capital ratio are watched closely, capitalization of the revaluation reserve would have serious consequences. With regard to the profit-capital ratio, the profits shown in the numerator would already have been decreased by higher depreciation charges on the revaluation amount. Now to increase the denominator by including the revaluation gain in the capital figure

[32] *Zeimu Nenkan, 1956* (Taxation Yearbook, 1956), Tokyo, 1955, p. 187.

[33] *Chusho-Kigyo Hojin no Saihyoka no Jisshi-Jokyo* (Progress of Revaluation by Small Business Firms), mimeographed pamphlet circulated by the National Tax Bureau, 1958.

would compound the effect on the ratio. *Daiyamondo* magazine estimated that the profit-capital ratio for all industries which was 77.5 per cent during the latter half of 1952 would drop to 7.7 per cent if the compulsory revaluation was carried out to the maximum and all the revaluation write-ups were capitalized.[34] The dividend-capital ratio would almost certainly decline after capitalization, even with moderate increases in the amounts of dividends paid. The extraordinary concern of investors with the dividend-capital ratio would probably make it difficult to raise additional capital by issuing new shares.[35] As long as capitalization was voluntary, it was difficult for any corporation to take the first step and increase its capitalization since it would suffer by comparison with firms that had not capitalized.

Government authorities, economists, and progressive business organizations felt that something should be done to remedy the situation in which strong enterprises could not be differentiated from weak ones because of the inadequacies of their financial reports.[36] Consequently, the 1954 act as originally presented to the Diet provided that a corporation would not be allowed to declare dividends in excess of 15 per cent of capital unless it had capitalized 40 per cent of its revaluation reserve. This provision met strong opposition from many businesses and when the law was enacted the capitalization ratio was reduced to 30 per cent.[37]

The results of the capitalization provisions of the 1954 law were extremely disappointing. As late as March, 1957, out of total capitalizable gains of 1,195 billion yen, only 173 billion had been capitalized.[38] The government determined to take action to correct this situation as the final step in its program of revaluation. The original suggestion in 1958 to make capitalization compulsory up to 80 per cent of the revaluation gains was strongly opposed by business groups and did not reach the floor of the Diet. A watered-down version of that bill was introduced in the 1959 session of the Diet and passed on March 6, 1959. For the next two years the law limits annual dividends to 12 per cent of capital for firms which have capitalized less than 30 per cent of the revaluation gain, and imposes a 15 per cent dividend limit on firms capitalizing between 30 per cent and 50 per cent of the gain. It is intended as an interim measure which will be succeeded by the final law two years later.[39]

Eighty-six of the 601 firms whose stocks are traded on the Tokyo Stock Exchange would be affected by the provisions of the 1959 law, if they maintain their present dividend policy. The total amount of capitalization required will not be more than 30 billion yen which is only about 2.5 per cent of the total capital of the 601 firms. While a small number of firms will be drastically affected, the over-all effect is expected to be relatively minor.[40]

[34] *Daiyamondo*, Vol. 42, No. 11 (March 11, 1954), pp. 15-16.

[35] *Keizaijin*, Vol. 8, No. 5 (May 1954), p. 36.

[36] Yukio Eguchi, "Capitalization of Revaluation Gains," *The Oriental Economist*, Vol. XVIII, No. 435 (May 5, 1951), p. 345. Also, Keiichiro Niwayama, "Saihyoka Tsumitate-kin no Saishu Shori" (The Final Treatment of the Revaluation Reserve), *Toyo Keizai Shimpo*, No. 2802 (November 2, 1957), pp. 56-57.

[37] Ministry of Finance, *Showa 25-nen Iko no Zeisei Kaikaku no Gaiyo* (Outline of the Tax Reform since 1950), Tokyo, 1956, p. 158.

[38] *Toyo Keizai Shimpo*, No. 2802 (November 12, 1957), p. 62.

[39] *Zeimu Tsushin* (Taxation Report), No. 545 (April 6, 1959), pp. 15, 18-19.

[40] *Yamaichi Shoken Shoken Geppo* (monthly publication by the Yamaichi, a security company), No. 125 (January 1959), p. 71.

Conclusions

The history of asset revaluation in Japan suggests several conclusions that may have general applicability in the area of income taxation. The Japanese experience demonstrates again that asset revaluation by the use of index numbers is technically feasible and can be carried out with a minimum of administrative difficulties. This view is confirmed by the successful experience of Belgium[41] and France[42] with the utilization of the same type of technique and our American experience with the use of index numbers in connection with " dollar value " LIFO.

If revaluation is viewed as a once and for all event, it is possible to predict with reasonable accuracy what the maximum revenue loss from revaluation will be year by year. Models can be constructed using different revaluation tax rates and different price indices to indicate maximum tax losses under various alternatives. These maxima will exceed the actual tax losses to the extent that individuals and firms choose not to revalue assets. Whenever a tax is imposed on revaluation write-ups voluntarily made, some taxpayers will forego revaluation no matter how favorable the mathematical calculations indicate the change to be. The more sophisticated in tax matters the tax paying group is, the more nearly actual losses will approach the maxima, assuming the revaluation is favorable to taxpayers. The Japanese experience indicates that revaluation will confer more benefits on large businesses than on small, but this tends to be true of any voluntary tax innovation that is available to all groups on equal terms.

The difficulties that have arisen in connection with capitalization of write-ups are symptomatic of the problems that arise when tax regulations are made to serve as a vehicle for controlling financial recordkeeping. By such action tax reform is made less effective and realistic financial reporting is frequently thwarted; both the fiscal system and the operation of the capital markets suffer as a result. Experience with regulations that compel accounting reports to conform to tax records in Canada [43] and Sweden [44] bears out this undesirable effect. If revaluation of assets is to be permitted for tax purposes, the resulting figures should not be made controlling for financial accounting purposes.

[41] E. B. Northcliffe, " Revaluation of Assets in Belgium," *The Accountant* (England), Vol. 120, No. 3879 (April 23, 1949), pp. 323-7.

[42] John Hammond, " Notes on the Calculation of Business Profits During the Present Inflationary Period in France," *Accounting Research*, Vol. 3, No. 4 (October 1952), p. 346.

[43] A. W. Hamilton, " Section 1100(4)," *Canadian Tax Journal*, Vol. 2, No. 4 (July-August 1954), p. 204.

[44] Sidney Davidson, " Depreciation, Income Taxes, and Growth," *Accounting Research*, Vol. 8, No. 3 (July 1957), pp. 203-4.

THE EROSION OF A STATE INCOME TAX

REUBEN A. ZUBROW *

IT IS widely understood that the federal income tax in the United States is characterized by a steeply graduated rate structure applied to an extensively "eroded" tax base. In recent years considerable attention has been directed to the various forms and amounts of leakage which occur in federal income tax reporting.[1] Pechman estimated that the total taxable income reported on the 1956 federal returns amounted to only two-fifths of the personal income received in the nation that year, notwithstanding the fact that the ratio of taxable income to personal income had quadrupled since the outbreak of World War II.[2] Furthermore, the point has repeatedly been made that without any loss in tax yield the present level of federal bracket rates could be reduced by as much as one-third across the board if the leakages resulting from underreporting of income, statutory exclusions, preferential deductions and personal exemptions were materially modified or eliminated.[3]

That a similar situation of income leakage also exists on the state level, although quantitatively on a smaller scale, should be of interest to tax students and tax administrators concerned with the continued lagging of state revenues behind ever-expanding expenditure programs. Today more than three-fifths of the states utilize some form of personal income taxation as part of their revenue systems, and many of these states are confronted with the problem of tax base erosion. For example, in 1957 North Dakota and Colorado had the highest and most steeply graduated state tax rate structures in the nation, but on the basis of collections per $1,000 of personal income received that year they ranked 20th and 14th, respectively, among the 24 personal income tax states for which data were available. Because of the large variations between the income tax bases of the several states, there appears to be little direct correspondence between the levels of state tax rates and the relative amount of revenue collected from this source. Moreover, there have been no studies made comparable to those developed for the federal income tax on the extensiveness of the income leakage which takes place on the state level. The purpose of this paper is to

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[1] Selma F. Goldsmith, "An Appraisal of Basic Data Available for Constructing Income Size Distributions," *Studies in Income and Wealth*, National Bureau of Economic Research (New York, 1951), Vol. XIII, pp. 266-327; Daniel M. Holland and C. Harry Kahn, "Comparison of Personal and Taxable Income," *Federal Tax Policy for Economic Growth*, Papers Submitted by Panelists to the Joint Committee on the Economic Report, 84th Congress, 1st Session (Washington, D. C., 1955), pp. 313-338; R. E. Paul, "Erosion of the Tax Base and Rate Structure," *Tax Law Review*, Vol. II, 1956, pp. 203-214; Joseph A. Pechman, "Erosion of the Individual Income Tax," *National Tax Journal*, March, 1957, pp. 1-25; Harold M. Groves, "Empirical Studies of Income Tax Compliance," *National Tax Journal*, December, 1958, pp. 291-301; Frederick D. Stocker and John C. Ellickson, "How Fully Do Farmers Report Their Income?" *National Tax Journal*, June, 1959, pp. 116-127.

[2] Pechman, *op. cit.*, p. 5.

[3] Pechman, *op. cit.*, p. 25.

report the results of an attempt to measure the approximate amount of erosion of the Colorado income tax base. The study was undertaken in connection with a broader analysis of the state's over-all fiscal structure.[4]

COMPARATIVE INCOME TAX BURDEN

Colorado has proven to have a relatively light state income tax burden by every significant measure used in making interstate comparisons. When the 1957 state income tax liability was computed for a married taxpayer with two dependent children at eight different levels of adjusted net income, ranging from $3,000 to $100,000, for each of the 29 income tax states and the District of Columbia, the analysis showed that the representative Colorado taxpayer incurred a tax liability which was less than the national average at all levels of income. Moreover, the tax bills for such Colorado taxpayers with adjusted net incomes of $15,000 and less proved to be smaller than that of similar taxpayers in three-fourths of all the other income tax states, and 98 per cent of Colorado's taxpayers are to be found in these medium and low income categories.[5] Similarly, interstate comparisons of the relative importance of personal income tax revenues showed that Colorado's collections for fiscal year 1957 were: on a per capita basis 15 per cent below the national average; as a percentage of personal income 20 per cent below the national ratio; and as a percentage of total state tax revenues 25 per cent below the national average.[6]

This comparatively low position of Colorado among the personal income tax states in 1957, as already noted, cannot be primarily attributed to its structure

[4] This paper is based in part on the 1959 study of the financing of government in Colorado undertaken for the Governor of Colorado by Professors Eugene Halaas and E. H. Plank of the University of Denver, and Professor Reuben A. Zubrow of the University of Colorado.

[5] The following table was computed from the individual income tax regulations, instructions and forms of the 29 income tax states and the District of Columbia.

[6] Based on U. S. Department of Commerce, Bureau of Census, *Compendium of State Government Finance in 1957;* and *Survey of Current Business,* August, 1958.

Computed State Personal Income Tax Liability for a Representative Married Taxpayer with Two Dependent Children at Selected Levels of Adjusted Net Income, Taxable Year, 1957

Adjusted net income level	Dollar amount of tax liability			Computed Colorado tax	
	Colorado	National average	Highest state	Rank from top state	Per cent of national average
$ 3,000	$ 0	$ 3.91	$ 20.00	..	...
5,000	14.62	36.36	100.00	23	40.2
8,000	56.27	119.46	295.00	23	47.1
10,000	98.72	191.24	445.00	24	51.6
15,000	278.80	402.29	820.00	22	69.3
25,000	818.72	864.52	1,748.90	14	94.7
50,000	1,871.36	1,938.64	4,232.40	17	96.5
100,000	3,313.98	3,891.00	9,179.40	18	85.2

The computed tax liabilities were based on the following assumptions: (1) the taxpayer is married and has two dependent children; (2) wife has no income, and family receives no income from dividends, interest or capital gains; and (3) the adjusted net income is *after deductions* of whatever "personal" and/or "non-business" expenses the various states and federal government allow; but *before* any personal exemptions, or credits, and *before* either federal or state income taxes.

of tax rates. The normal rate schedule ranged from a minimum of 1 per cent on the first $1,000 of taxable income to 10 per cent on income in excess of $11,000. In addition, the state imposed a 2 per cent surtax on the income earned on intangible assets, i.e., dividend and interest income. The combined normal and surtax rates actually resulted in Colorado having the highest statutory rate structure in the nation in 1957 for taxpayers in the top marginal bracket whose incomes were mainly derived from the ownership of intangible assets.[7] Notwithstanding this progressivity of the rate structure, the relative burden was light simply because the major portion of the personal income received by Colorado residents was never subjected to state income taxation since it never found its way into the tax base, as shown by a detailed study of the more than half-million 1957 Colorado individual tax returns filed in 1958.[8]

[7] As a result of the report of the Governor's Tax Study Group and the Governor's recommendations, the 1959 Colorado Legislature enacted the following revisions to the Colorado Income Tax Act (Colorado Revised Statutes, Chap. 38, Art. I, 1959 Colorado Session Laws, House Bill No. 352).

(1) Adjusted the 1 to 10 per cent normal rate schedule to 3 to 9 per cent, with the maximum rate applied to taxable income in excess of $10,000;
(2) Raised the surtax exemption on surtaxable income from $600 to $5,000, with no change in the 2 per cent surtax rate;
(3) Provided full medical expense deduction on itemized returns;
(4) Extended the required minimum holding period for capital assets yielding long-term capital gains from 6 months to 30 months;
(5) Raised the maximum net taxable income from $5,000 to $10,000 for taxpayers using the tax table or taking the optional standard deduction;
(6) Raised the state payroll withholding from 4 to 6 per cent of the amount of federal income tax withheld.

[8] The analysis of the Colorado state income tax was based on a 2 per cent, stratified, cluster sample of 1957 Colorado tax returns drawn from 520,196 regular returns filed in 1958. The estimates of sampling reliability computed for a 95 per cent level of confidence were 4.4 per cent for adjusted gross income, 4.0 per cent for exemptions, and 2.7 per cent for combined normal and surtax liability. Moreover, the estimate of total tax liability based on the sample data worked out to be only 1.3 per cent smaller than the actual total tax liability obtained by the Colorado Department of Revenue from a complete census of this item.

STATUTORY EXCLUSIONS AND UNDERREPORTING

The Department of Commerce estimate of Colorado *personal income* for the calendar year 1957 amounted to $3,339 million. In contrast, the data reported on the 1957 Colorado individual income tax returns showed that the *net taxable income* used as the basis for the computations of normal tax amounted to about $800 million, or less than 25 per cent of the total personal income received in Colorado during that year. This large gap of more than $2.5 billion between the actual flow of income and that finally subjected to state income tax was mainly due to the following four factors: (1) basic differences in the conception and statutory definition of income; (2) legal and illegal underreporting of income by taxpayers; (3) extensive use of statutory personal expense deductions, particularly the federal income tax; and (4) statutory personal exemptions.

The derivation of adjusted gross income reported for Colorado tax purposes from personal income received in 1957 is summarized in Table I. Although these figures are estimates they are indicative of the relative magnitudes of the factors which accounted for the shrinkage of this part of the Colorado income tax base.

On the basis of personal income of $3,339 million (column 1), the corresponding adjusted gross income that

should have been reported for tax purposes amounted to $2,880 million (column 3). The gap between the two measures represents the loss resulting from Colorado's specific statutory gross income exclusions and other conceptual differences in the definition of income. For example, the Department of Commerce concept includes such nontaxable components as interest on federal securities, imputed rent of owner-occupied residences, imputed and accrued interest, government and business transfer payments, and income in kind. On the other hand, it excludes certain forms of income considered taxable under the Colorado code, such as net capital gains, employee contributions to social security, and annuity payments in excess of cost. Adjustments were made for the above conceptual differences (column 2) in order to derive the appropriate amount of adjusted gross income which corresponds with the Department of Commerce estimate of personal income received by Colorado residents in 1957.

As will be noted, the largest single adjustment required was the deduction of $225 million for transfer payments not subject to taxation. Other deductions were made to wage, entrepreneurial and property incomes in order to take account of conceptual differences between personal and taxable income.[9] The wage component was reduced by $99 million, or approximately 4 per cent, in order to account for employers' contributions to social insurance and nontaxable military pay and allowances. The incomes of businessmen, farmers and other self-employed persons were decreased by $66 million, or about 12 per cent, as a measure of the receipt of income in kind and imputed income. The largest adjustment was made to the property income component which was reduced by $175 million, or almost 40 per cent, because neither the Colorado nor federal income tax codes make any reference to imputed interest and rent. The latter may be defined as the amount of income which could have been obtained as a net return on home investment if owner-occupied residences were rented to others.[10]

In contrast to the above deductions, $64 million of personal contributions to social insurance and $5 million in annuity income in excess of cost omitted from the Department of Commerce personal income measure were added back into the tax base. Another important addition was the inclusion of reported net capital gains in the corresponding adjusted gross income total. Colorado is among the minority of in-

[9] These adjustments, based on ratios developed by Holland from federal data, were made on the assumption that the national ratios generally were applicable to Colorado since the state's per capita personal income in recent years has closely approximated the median for the nation. See Holland, *op. cit.*, Table I, p. 315.

[10] Under the income tax laws of England imputed rent derived from the ownership of real property is considered explicitly to be income and is taxed accordingly. Several tax authorities have contended that the omission of such rental income from the tax base in the United States results in tax discrimination and has a regressive effect on the tax structure since home ownership among taxpayers tends to vary directly with income. A recent Federal Reserve study indicated that in 1957 about 80 per cent of non-farm households with incomes of $10,000 or more owned their own homes, whereas home ownership was only 40 per cent among those with net incomes of $4,000 or less. See H. C. Simon, *Personal Income Taxation* (Chicago: University of Chicago Press, 1938), pp. 112-119; B. L. Balch, "Individual Income Taxes and Housing," *National Tax Journal*, June, 1958, pp. 168-182; D. B. Marsh, "The Taxation of Imputed Income," The *Political Science Quarterly*, December, 1943, pp. 317-336; W. Vickrey, *Agenda for Progressive Taxation* (New York: The Ronald Press Company, 1947), pp. 18-24; and Federal Reserve System —Survey Research Center of the University of Michigan, "1957 Survey of Consumers Finances: Housing and Durable Goods," *Federal Reserve Bulletin*, June, 1957, p. 639.

come tax states which statutorily excludes 50 per cent of long-term capital gains from the tax base. It is estimated that the $37 million of net capital gains reported on the 1957 returns actually represented about $83 million of net long-term gains and $4 million of net short-term losses. Or stated differently, this special provision in the Colorado code resulted in the exclusion of more than $40 million, or approximately 5 per cent of the 1957 personal income tax base.

After all of the above adjustments are taken into consideration it appears on net balance that $459 million, or approximately 14 per cent of the personal income received in Colorado, never was reported for state income tax purposes because of statutory exclusions and conceptual differences. Comparable studies made on the national level indicate that more than 11 per cent of personal income was excluded from the federal tax base for the same reasons.[11] The Colorado and federal percentage estimates of this type of leakage from the tax base should roughly approximate each other since the broad definitions of adjusted

TABLE I

RELATIONSHIP OF COLORADO PERSONAL INCOME AND ADJUSTED GROSS INCOME REPORTED ON STATE INCOME TAX RETURNS, 1957

Type of income	(1) Dept. of Commerce 1957 Colo. personal income [a] (millions)	(2) Statutory exclusions and conceptual differences [b] (millions)	(3) Corresponding adjusted gross income (millions)	(4) Amount of gross income underreported (millions)	(5) Adjusted gross income reported on tax returns [c] (millions)
Wages, salaries and other labor income	$2,188	$ - 99 [d]	$2,089	$ -265 [e]	$1,824
Proprietors' income	540	- 66 [f]	474	-157	317
Farm income	150	- 33	117	- 50	67
Business and professional	390	- 33	357	-107	250
Property income	450	-175 [g]	275	- 74	201
Transfer payments	225	-225	...	...	...
Personal contributions for social insurance	- 64	+ 64	...	...	...
Net capital gains [c]	...	+ 37	37	...	37
Annuities [c]	...	+ 5	5	...	5
Totals	$3,339	$ -459	$2,880	$ -496	$2,384

[a] U. S. Department of Commerce, *Survey of Current Business*, August, 1958, p. 20.
[b] Wage, proprietors', and property income adjustments based on national ratios.
[c] Based on sample survey of Colorado income tax returns for 1957.
[d] Employer contributions to social insurance, nontaxable military pay and allowances, etc.
[e] Includes wage income legally exempted from reporting.
[f] Primarily income in kind and imputed income.
[g] Imputed rent on owner-occupied dwellings, imputed and accrued interest, income of nonprofit organizations.

[11] Holland estimated the conceptual difference between personal and adjusted gross income for the federal income tax to be 11.6 per cent for 1952. Similarly, the estimates reported by Pechman for this conceptual difference averaged 11.3 per cent for the nine years, 1948-1956 inclusive. See Holland, *op. cit.*, Tables 2 and 3, pp. 315-317; and Pechman, *op. cit.*, Table 1, p. 4.

gross income are generally similar under both codes.

It should be noted that the described statutory exclusions and definitional differences in the adjusted gross income concept accounted for less than one-half of the $1 billion gap between the personal income total (column 1) and the adjusted gross income *actually* reported on the returns filed (column 5). The other missing $500 million, approximating 15 per cent of the personal income flow, must be considered *unreported* income which never found its way into Colorado's normal income tax base.[12] In part, it can be explained by the fact that returns were not legally required from an undisclosed number of individuals whose incomes were below the state's required filing minimum of $750 per annum.[13] The remainder of this leakage represents the underreporting of income due to deliberate tax evasion and/or oversight on the part of taxpayers.

It is difficult to come up with precisely accurate figures as to the magnitude of these factors, but rough estimates of the degree of under-reporting of particular types of income can be obtained by comparing the wages and salaries, entrepreneurial incomes, and property incomes actually reported on the 1957 tax returns (column 5) with the estimated amounts that taxpayers should have reported on the basis of the data which correspond with the adjusted Department of Commerce incomes figures for Colorado (column 3). It is estimated that 87 per cent of the total wages and salaries received showed up on the 1957 returns and that $265 million, or 13 per cent went unreported. The studies of both Goldsmith and Holland, however, indicate that only about 5 per cent of wages and salaries was underreported on federal income tax returns during 1946 and 1952.[14] Because taxpayers almost invariably report the same amount of wage income on both their federal and state tax returns, particularly since Colorado's system of payroll withholding is tied to the federal withholding reported by employers, it is reasonable to assume that the 5 per cent national ratio of wage leakage was applicable to the 1957 Colorado state income tax returns. Thus, approximately $160 million, or more than three-fifths of the 13 per cent of labor income unreported on the Colorado returns, may be explained as wages which were legally excluded from adjusted gross income primarily because taxpayer incomes were below the minimum required for filing. In contrast, the percentages of underreporting of the other major sources of income were significantly higher than that calculated for wages and salaries. Although an undisclosed amount of such underreporting also may have represented legally excludable income, in large part, this leakage must be attributed to the fact that comparable "withholding-at-source" methods of collec-

[12] Some part of this unreported income may represent statistical errors since neither the Department of Commerce nor the Colorado income tax survey data are absolutely precise figures.

[13] On the basis of the 1957 resident returns filed in 1958 approximately 20 per cent of Colorado's total population were neither income taxpayers (in the reporting sense) nor dependents of taxpayers. However, it is not possible to ascertain the number in this group who were legally exempt from filing because of inadequate income. Moreover, many individuals who were legally exempt filed returns in order to obtain payroll withholding refunds. About 15,000 non-taxable refund returns, or 12 per cent of the total number of nontaxables, were in the adjusted gross income category of $750 or less.

[14] Goldsmith, *op. cit.*, p. 302; and Holland, *op. cit.*, p. 320, Table 4.

tion were not applied to non-wage incomes. On the basis of the sample survey it is estimated that about 27 per cent of the income derived from the ownership of property, 30 per cent of the income of business and self-employed professional persons, and 43 per cent of farm income were not reported on the 1957 Colorado tax returns.[15]

In the aggregate it appears that the adjusted gross income leakage on the 1957 Colorado tax returns resulting from deliberate or unintentional understatement ranged between $300 and $350 million, or approximately 10 to 12 per cent of the total adjusted gross income that should have been reported for tax purposes.[16] Of course, in terms of taxpayer compliance the voluntary reporting of 88 to 90 per cent of the adjusted gross income represents a very substantial proportion of taxable income. As such, it does not compare too unfavorably with the degree of compliance achieved on the federal level, and it makes clear that the erosion of the Colorado personal income tax base cannot be attributed primarily to widespread underreporting of income.[17]

[15] The following tabulation compares the Colorado estimates for 1957 with those calculated by Goldsmith and Holland for federal tax returns for 1946 and 1952:

Type of income	Percentage estimates of unreported income		
	Federal 1946[a]	Federal 1952[b]	Colorado 1957
Wages and salaries	5	5	13
Proprietors' income	29	30	33
Farm income	64	61	43
Business and professional	13	12	30
Property income	42[c]	39[d]	27[e]
Dividends	24	13	..
Interest	63	61	..
Rent	55	..	..

[a] Goldsmith, *op. cit.*, p. 302.
[b] Holland, *op. cit.*, p. 320.
[c] Computed average of the reported rates on dividends, interest and rents, weighted by Holland's 1952 national data.
[d] Based on the Goldsmith rate for rents.
[e] Detail not available.

It may be further noted that the Colorado estimate of farm income underreporting approximates the upper limit of the 25 to 40 per cent range estimated by Groves as the extent of the underreporting of income by Wisconsin farmers on their 1957 state tax returns. Groves, *op. cit.*, p. 301.

[16] Again, one should be forewarned that these data are imprecise, although roughly indicative of the magnitude of the problem. And it may be appropriate at this point to remind the reader of the maxim that "it is always better to be loosely correct, than precisely incorrect."

[17] The marked variations in the degree of reporting different types of income, however, creates serious "horizontal" inequities in the tax system. As observed by Holland, "Some taxpayers because of the particular sources from which their income derives, are in a better position to play the game of tax avoidance than others. A game not open equally to all is unfair." *Op. cit.*, p. 317.

EXPENSE DEDUCTIONS AND EXEMPTIONS

Table II summarizes the derivation of net taxable income from personal income received and shows the major factors responsible for the shrinkage of the 1957 Colorado individual income tax base. The preceding analysis of statutory exclusions, definitional differences, and underreporting of income accounted for almost $1 billion of the total leakage in the circuit flow of income from receipt to tax base. Personal expense deductions and exemptions permitted under the Colorado code accounted for the remaining gap of $1.6 billion, an amount equivalent to two-thirds of the $2.4 billion of adjusted gross income (before travel allowance) reported on all returns.

Generally, adjusted gross income represents the taxpayer's income net of expenses incurred in earning such income. In the case of the Colorado tax, however, it is useful to distinguish adjusted gross income *before* and *after*

travel allowance since Colorado is unique among the income tax states in permitting a standard minimum travel expense deduction of $75 to all taxpayers with earned income. This provision alone removed $44 million from the tax base, or slightly less than 2 per cent of the adjusted gross income. The gross income of approximately $2,000 million for those individuals subject to normal tax.

In turn, the statutory personal expense deductions taken by taxable individuals totaled $534 million, which represented more than one-fourth of their adjusted gross income. Moreover,

TABLE II

DERIVATION OF THE COLORADO PERSONAL INCOME TAX BASE FROM PERSONAL INCOME RECEIVED, 1957

		Amount (thousands)	Per Cent
1.	Personal income received [a]	$3,339,000	100.0
2.	Deduct: Statutory exclusions and conceptual differences [b]	459,000	-13.7
3.	Equals: Corresponding adjusted gross income	2,880,000	86.3
4.	Deduct: Unreported adjusted gross income [c]	496,315	-14.9
5.	Equals: Reported adjusted gross income on all returns (before travel allowance) [d]	2,383,685	71.4
6.	Deduct: Statutory travel allowance	44,379	- 1.3
7.	Equals: Adjusted gross income on all returns (after travel allowance)	2,339,306	70.1
8.	Deduct: Adjusted gross income of nontaxable returns	282,140	- 8.5
9.	Equals: Adjusted gross income of taxable returns	2,057,166	61.6
10.	Deduct: Statutory personal expenses of taxable individuals:		
	(a) Itemized deductions [e]	163,031	- 4.9
	(b) Standard deductions [e]	94,761	- 2.8
	(c) Federal income tax deductions	275,947	- 8.3
	Total deductions	533,739	-16.0
11.	Equals: Adjusted net income of taxable returns	1,523,427	45.6
12.	Deduct: Personal exemptions of taxable individuals	724,568	-21.7
13.	Equals: NET TAXABLE INCOME (NORMAL TAX BASE)	798,859	23.9
14.	Add: NET SURTAXABLE INCOME (SURTAX BASE)	79,958	+ 2.4
15.	Equals: NET INDIVIDUAL INCOME TAX BASE	$ 878,817	26.3

[a] U. S. Dept. of Commerce, *Survey of Current Business*, Aug. 1958, Table 55, p. 20.
[b] *Supra*, Table I, Column (2).
[c] *Supra*, Table I, Column (4).
[d] This and all subsequent items based on data derived from a survey of Colorado 1957 personal income tax returns.
[e] Except for federal income tax.

latter, after travel allowance, was $2,339 million, or almost exactly 70 per cent of the personal income received by Colorado residents in 1957. If from this figure we further subtract the $282 million of income reported on nontaxable returns,[18] we obtain an adjusted

the relative importance of the Colorado provision permitting full deductibility of federal income taxes on both itemized and standard returns (in addition to other personal expenses) is indicated by the fact that the $276 million of federal tax deduction accounted for more than

[18] Nontaxable returns were eliminated at this point in the analysis because the sum of personal expenses and exemptions ($401 million) exceeded the adjusted gross income on these returns.

the combined amount of all other itemized and standard expense deductions taken on taxable returns.

The largest single factor responsible for the shrinkage of the tax base was the statutory personal exemption of $750 per taxpayer and dependent, plus double exemptions for those aged 65 and over or blind. Double exemptions were claimed on one out of every ten returns filed, but they did not have a correspondingly large impact on the income tax base for they represented less than 5 per cent of the total number of exemptions taken by all taxpayers, and dollarwise amounted to less than $50 million, or approximately 2 per cent of the adjusted gross income reported on all returns. The total value of all personal exemptions claimed by *taxable* individuals was $725 million—an amount in excess of all other deductions combined and in excess of one-third of the reported adjusted gross income of this group. After exemptions, the remaining $800 million, representing less than one-fourth of the personal income received, constituted the *net taxable income* used as the tax base for the computation of the normal tax on the 1957 returns. And to this normal income must be added the *net surtaxable income*, i.e., gross income from intangibles less surtax exemptions, which amounted to another $80 million, or 10 per cent of the net income subject to normal tax.[19]

Thus, at the end of the income circuit, the net individual income tax base for Colorado was $880 million, or just slightly more than one-third of the adjusted gross income actually reported on all tax returns. Viewed in terms of erosion, 74 per cent of the total personal income received by Colorado residents in 1957 never was subjected to state income taxation, and, hence, only 26 per cent found its way into the State's individual income tax base. As already noted, federal returns reveal that more than 40 per cent of the personal income received in the nation during recent years has been included in the federal tax base. The fact that the Colorado ratio is more than a third lower than the federal cannot be attributed to statutory exclusions and under-reporting of income, but rather is due primarily to the higher personal exemptions on the state level and the federal income tax deductibility provision which inevitably must result in a significant loss in state revenue when the federal tax-take is at an all-time high. It is estimated that if the Colorado code had not permitted any deduction of federal income tax in the computation of the state tax base, state revenues in 1957 would have been increased by more than $10 million, or approximately 55 per cent of the total personal income tax liability actually incurred that year. In short, Colorado's steeply graduated personal income tax rate structure of 1 to 10 per cent in 1957 only yielded $18.3 million in revenue,[20] an amount which worked out to be 2.1 per cent of net taxable income, .8 of 1 per cent of the adjusted gross income reported on all returns, and .5 of 1 per cent of the total personal income received in Colorado as estimated by the Department of Commerce. Finally, to carry the analysis one step further, when Colorado's half-million 1957 tax returns were classified by the dollar amount of

[19] Net surtaxable income as reported on the 1957 taxable returns was equal to the $123.3 million of gross surtaxable income less $43.3 million of surtax exemptions.

[20] This represents the combined normal and surtax liability reported in regular returns only and is exclusive of tax on fiduciary, deficiency, tentative and prior-year delinquent returns.

individual tax liability, less than 5 per cent showed a tax in excess of $100, while more than 40 per cent reported a total tax for the full year of $5 or less. A state personal income tax, such as Colorado's, characterized by a highly progressive rate structure, an extensively eroded base, and a tax liability for one-third of its taxpayers which did not cover the average cost of collection and administration of the tax brings to mind Henry Simon's oft-quoted dictum which may be paraphrased to read " it is high time state governments quit the ludicrous business of dipping into the average taxpayer's income with a sieve."

RAISING STATE INCOME TAX YIELDS THROUGH EQUITY REFORMS

RALPH GRAY *

SINCE the Korean War, inflation, higher income levels, and population pressures have all meant ever-increasing budgets for state governments. As a result, the search is on in every state for new revenue sources. Typically new sources have not been very novel; in fact, they have usually been higher rates pinned to long standing tax legislation. Yet legislators in their search for additional income are obligated to look for those measures which enhance or at least do no damage to the tax system's equity in the course of augmenting income flow. What is more, it is logically as well as ethically unsound to ignore potentially productive equity reforms and to perpetuate violations of distributive justice by across-the-board rate increases.

Perhaps there is an explanation for legislatures apparently overlooking lucrative equity reforms as methods of financing budget increases. Measures designed to build greater equity into a tax system are usually thought of as having negligible revenue effects. Of course, it is recognized that the reduction of evasion can considerably increase revenue. Yet it is as often felt that the high marginal costs of reducing evasion mean that evasion has little net significance. However, analysis of the current Arkansas revenue situation with reference to equity reforms shows that such assumptions need not be true of Arkansas or for that matter of a number of additional states.

The two kinds of equity reforms which are most likely to produce a significant increase in revenues are: 1) measures designed to increase compliance and 2) reformulation of provisions for safeguarding subsistence income. Using Arkansas as an example, the operation of these reforms and their potential revenue effects will be demonstrated in the following material.

Increased Compliance: There is probably no more inequitable tax system than that which exacts different tolls from people in identical tax circumstances. There is considerable evidence that in Arkansas just this is happening, to the detriment of over 100,000 individuals and families who file and pay personal income taxes and at a cost to the state of about $1.5 million per year.

Evasion of the Arkansas personal income tax was estimated for 1957 by contrasting actual collections with those inferred by federal income tax collections in the state (See Table I, columns 1-7). An unfortunately roundabout method had to be utilized for making these estimates since the state income tax collector has not sufficient staff to allow a breakdown and analysis of collections by income classes. Since there is virtually no difference in the Arkansas and U. S. definitions of income, the number of potential taxpayers in each income class subject to state income tax

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TABLE I

POTENTIAL MAGNITUDE AND DISTRIBUTION OF INCOME TAX BURDENS UNDER THE ARKANSAS PERSONAL INCOME TAX: 1957

(1) Adjusted gross income class (000's)	(2) Average income subject to tax	(3) Individual returns filed	(4) Family returns filed	(5) Individual tax bill [2]	(6) Family tax bill [3]	(7) Total taxes paid, individuals and families	(8) Individual tax bill, vanishing credits [4]	(9) Family tax bill, vanishing credits [4]	(10) Total taxes paid, individuals and families, vanishing credits
under $ 1	.....	....	.....	....	.....	.....	....	.....	.....
$ 1 " 2	.....	....	.....	....	.....	.....	[1]	.....	.....
2 " 3	$ 2,222	5,689	.....	$ 4	.....	$ 26,852	$ 22	.....	$ 126,410
3 " 4	3,079	2,785	.....	14	.....	39,603	31	[1]	87,950
4 " 5	4,027	1,776	46,894	33	$ 4	252,820	50	$ 50	2,459,782
5 " 10	5,907	2,688	63,511	70	41	2,840,829	88	88	5,834,780
10 " 15	11,088	266	5,546	226	197	1,153,349	243	243	1,415,338
15 " 20	16,357	110	2,283	437	407	979,236	454	454	1,087,092
20 " 25	21,321	54	1,121	635	606	714,127	652	652	767,087
25 " 50	34,390	67	1,393	1,252	1,233	1,801,592	1,269	1,269	1,853,470
50 " 100	67,486	13	279	2,906	2,877	840,722	2,924	2,924	853,896
100 " 150	109,086	2	33	4,988	4,959	173,633	5,005	5,005	175,199
150 " 200	160,714	....	7	....	7,539	52,775	....	7,585	53,100
200 " 500	245,000	....	4	....	11,753	47,014	....	11,800	47,200
500 " 1,000	.....	....	.....	....	.....	.....	....	.....	.....
1,000 or more	2,061,000	....	1	....	102,541	102,541	....	102,600	102,600
Sub Total		13,450	121,072						
Totals		134,542				$9,025,093			$14,863,904

[1] Returns filed would be negligible; credits vanish in this bracket.

[2] Gross taxes computed at Arkansas rates (1% first $3,000, 2% next $3,000, 3% next $5,000, 4% next $14,000 and 5% all income above $25,000) and personal tax credit of $17.50 deducted to yield net tax bill.

[3] Gross taxes computed at Arkansas rates and personal credits ($35.00 for married couple or head of household plus $6.00 for each dependent) for 3.9 persons, $46.40, deducted to yield net tax bill.

[4] Tax bills computed under the assumption that credits vanish in a manner that income after taxes increases $.01 for each $1 that income before taxes increases until the credits have vanished.

Sources: *Individual Income Tax Returns for 1956*, U. S. Treasury Department, Internal Revenue Service; *Individual Income Tax Return* and *Instruction Sheet*, State of Arkansas, 1958; *State Tax Reporter, Arkansas*, Commerce Clearing House; *U. S. Census of Population 1950: General Characteristics, Arkansas*, U. S. Department of Commerce, Bureau of Census, Table 32, pp. 4-46.

was assumed to be the number filing federal returns in 1956. Average income for each class was computed by dividing the total income reported in each class for federal purposes by the number of taxpayers in each class, then deducting the state standard deduction.

Next the total returns filed in each income class were divided between families and individuals on the basis of 1949 Bureau of Census data and a census of 1949 state tax returns.[1] Then the average state tax bill was computed for individuals and families (assuming the average family consists of 3.9 persons). The average tax bill was then multiplied by the number of returns filed for both individuals and families and added. The result, $9.0 million, is the inferred total personal income tax receipts had evasion been reduced to federal levels. Actual payments on 1957 incomes were only $7.5 million and only 104,000 returns were filed instead of the 135,000 inferred by federal experience.[2]

Had Arkansans been as forthright in paying their state taxes as in meeting their federal liabilities, revenues would have been $1.5 million greater in 1957. How could this happier state of affairs have been brought about? Two measures would have brought Arkansas and federal returns within an insignificant amount of each other: joint auditing and source withholding, accompanied by more intensive source reporting.

Probably the largest portion of those who evade the Arkansas personal income tax through not filing are self-employed persons who sell goods or services which have a low unit value and thereby escape information at the source provisions. Since in most cases those who would without trepidation defraud the state would not attempt the same with the federal government, a system of joint auditing with the federal government would prove an ideal means for discovering who these evaders are.

Arkansas could follow the example of several other states by arranging for state and federal administrators to plan their audits so that efforts are not duplicated. After audits are performed, information gathered could be shared. Similar sharing of information among states has precedent as well and has much to recommend it in auditing returns showing dual domiciles. The federal government could also furnish the state with a census of those individual taxpayers that made above $1,750 and taxpaying families which made above $3,500 (the legal minimums for filing); this list could then be checked against incoming returns. In this way the only residents successful in evading Arkansas income taxes would be those who also outwitted the federal government.

In recent years migration from Arkansas has reached significant proportions; in 1950, a relatively low net migration year, 85,000 people reported having moved away from Arkansas in the period between 1949 and 1950. Doubtless many of these and later migrants left owing state income tax. The solution to this problem lies in the adoption of source withholding and the extension of present information at the source provisions. Were withholding conducted as it is on the federal level, the wage and salary earners who leave the state prior to filing deadlines

[1] *United States Census of Population: 1950: General Characteristics Arkansas,* Table 45, p. 98; *Arkansas Personal and Corporate Income Tax Payments, 1949,* Unpublished Report Arkansas Commissioner of Revenues, Income Tax Division.

[2] *Arkansas Personal and Corporate Income Tax Payments, 1957 and 1958,* Unpublished Report Arkansas Commissioner of Revenues, Income Tax Division.

would be automatically barred from evading their state income taxes. As additional icing on the fiscal cake provided by withholding, the state's personal income tax collections would approximately double in the first year, since current and last year's liabilities would be simultaneously collected.[3]

Information at the source is now supplied to the state by all who make payments of $2,500 or more in the form of salaries, commissions, rents, royalties, etc., to individuals, partnerships, or fiduciaries. This requirement could be amended in two ways. First, the source reporting requirement as it applies to payers of wages and salaries could be lowered to $1,750, the legal minimum for filing returns. This would aid the state's auditing process in the same way that the W-2 forms assist the federal internal revenue service. Second, the source reporting requirement as it applies to those who make payments of commissions, rents, and royalties should be extended to include payments for professional services and lowered to $500 for all non-wage and salary payments. These two modifications would materially assist the auditing process by bringing more information on both wage and salary payments and professional fees into the collector's office.

Subsistence Income Safeguards: Safeguarding a subsistence income level has been traditionally regarded as a necessary ingredient of an equitable income tax system. Accordingly both federal and state income tax systems have always spared from taxation legislatively defined minimum levels of income. The more common device employed to this end is the exemption which is deducted from total income to yield taxable income. A more recent technique for achieving the same goal is the tax credit. The tax credit is deducted from the gross tax bill and thereby in effect exempts from taxation all levels of income which incur a gross tax liability less than or equal to the tax credit. Both apply to all levels of income and both are usually made to vary with family size.

To paraphrase Amotz Morag's recent article in this *Journal*, whether or not exemptions or credits are equitable and therefore desirable or undesirable is not the concern of this article; the point is they are *desired*.[4] Of this there is ample proof. *But are they desired in their present form?* Society has implicitly said it is just that individual and family maintenance be shielded from direct taxation; yet are legislatures aware of the inconsistency that exists in the legislation which has sought to put this principle to work? Probably not. The relationships among taxpayers that exemptions and credits give rise to seem to be shrouded in mystery for both the public and legislatures. To wit, it happens that Democratic congressmen are enthusiastically lauded in some circles when they ask for higher exemptions in order to give the "little guy" a break. Apparently all are unaware that such a step amounts to scooping taxable income out of the 91 per cent rate bracket for upper income individuals.

On the federal level and in all states taxing income, exemptions and credits are granted in the continuing form.

[3] Walter W. Heller and Clara Penniman discuss in detail these and other aspects of source withholding, including estimates of the productivity of its inauguration in other states, in their article, "A Survey and Evaluation of State Income Tax Withholding," *National Tax Journal*, Vol. X, No. 4, December 1957, pp. 298-309.

[4] Amotz Morag, "Reflections on Progressive Taxation," *National Tax Journal*, Vol. XI, No. 3, September 1958, p. 229.

The public in general and legislatures specifically fail to realize that in the continuing form they are entirely inconsistent with the equity argument on which they are based, preservation of subsistence income. The Arkansas example set forth below demonstrates this inconsistency and shows that a measure to eliminate it would produce significant revenue increases.

In Arkansas the legislature has implicitly declared that a subsistence income level is $1,750 for the individual and $3,250 for the family of two, $3,550 for the family of three, etc. Accordingly individuals receive a $17.50 personal tax credit and families $35.00 as a base credit, plus $6 for each additional dependent. An example of the credit's operation is the individual who makes the $1,750 minimum income. At 1 per cent his gross tax liability would be $17.50. After the $17.50 tax credit, net taxes would be reduced to zero for this individual.

The inconsistency of the continuing credit arises from the fact that no matter how much income increases the credit prevails. The argument in favor of the use of credits is to preserve income above a certain minimal level, but after income has risen above a certain point ($1,768 in the individual's case) there is no justification for the credit because income after gross taxes would not fall below the subsistence minimum inferred by legislation. (Again for the individual, $1,768 times 1 per cent = $17.68 which subtracted from $1,768 leaves $1,750.32 after gross taxes which is still above $1,750). Thus individuals and families who earn incomes above certain levels receive tax credits for which there is no justification.

Eliminating credits at whatever levels that are no longer justified (use of the lump sum credit) is also inequitable because it would reduce the income after taxes of the first person who does not qualify for the credit to a level below that of the last person to qualify for the credit.[5]

So a vanishing credit system is the only logical and equitable alternative. By diminishing the tax credit as gross taxes rise, the anomalies of the continuing and lump sum credit systems are avoided. The goal of preserving certain income levels after deductions is achieved without guaranteeing credits to those whose income would be above exempted income levels even after gross taxes. At the same time tax yields would increase significantly.

The revenue effects of vanishing credits can be seen in Table I, columns 8, 9, and 10. Under the assumption of vanishing personal credits, the average tax bill for individuals and families in each income class was computed and multiplied out. These figures were then totaled to $14.86 million, a measure of taxes paid after introduction of cooperative auditing procedures, source withholding *and vanishing personal credits*. The increment attributable to vanishing credits alone is $5.86 million, a revenue increase of over 60 per cent, which would have been gained by eliminating a provision which now exists without justification.

The system employed in the example reduced credits in such a way that income after taxes rose by one cent for each dollar that income before taxes increased; however credits may vanish at

[5] Using the individual as an example, under a lump sum credit system, a person who made $1,767 after deductions, which would entitle him to the credit, would retain $1,766.83 after taxes and thus would have a higher after tax income than the person whose income was $1.00 more, but who would not be entitled to the credit and would retain only $1,750.32 after taxes.

almost any rate short of instantly. The operation of vanishing credits is demonstrated in Table II, which relates taxable income, vanishing personal credits, and gross and net taxes with income after taxes. Exemptions can of course be made to vanish in much the same fashion.[6]

Over the income range in which credits or exemptions vanish, the marginal tax rate is almost 100 per cent until vanishing is complete and the nominal marginal rate is effective. But this apparently inequitable situation is better than the alternatives which involve on one hand credits or exemptions granted without justification, or on the other hand a punitive tax rate at the level where lump sum credits or exemptions would disappear. What is more, average tax rates in the vanishing range are extremely low relative to marginal rates. Using the schedule selected for the Arkansas case, $1,751, the first taxable income, is taxed at .06 per cent while $1,769, the first income level not entitled to a credit, is taxed at 1 per cent.

A question of progressivity and equity can arise in connection with adopting vanishing credits. Obviously raising the taxes of $3,000 and $10,000 per year individuals by the same amount, $17.50, involves for the $3,000 per year taxpayer greater sacrifice of pleasure or "faculty," or is "unlovely," or is not in keeping with broader national goals.[7] However this argument is not relevant. Credits are argued for not on the grounds of progression, but in defense of a minimum level below which taxes should not reduce income.

The rate at which credits vanish and the progressivity of a tax system after vanishing credits are introduced are pertinent, though, and may be argued as equity considerations. Perhaps where vanishing is adopted a compensatory increase in progressivity would be called for; but because progressivity is not connected with the *rationale* for adopting credits, there is no reason not to incorporate vanishing credits merely on the basis of their impact on progression. The same argument applies but in reverse for exemptions; reduction of exemptions affects those in the higher income brackets to a greater degree than those in the lower income brackets in a progressive tax system.

After incorporation of vanishing credits or exemptions, over-all progres-

TABLE II

PERSONAL INCOME TAX LIABILITY FOR INDIVIDUALS, VANISHING CREDITS

Income after deductions	Gross tax	Personal credit	Net tax	Income after taxes
$1,750	$17.50	$17.50	....	$1,750.00
1,751	17.51	16.52	$ .99	1,750.01
1,752	17.52	15.54	1.98	1,750.02
1,753	17.53	14.56	2.97	1,750.03
1,754	17.54	13.58	3.96	1,750.04
1,755	17.55	12.60	4.95	1,750.05
1,756	17.56	11.62	5.94	1,750.06
1,757	17.57	10.64	6.93	1,750.07
1,758	17.58	9.66	7.92	1,750.08
1,759	17.59	8.68	8.91	1,750.09
1,760	17.60	7.70	9.90	1,750.10
1,761	17.61	6.72	10.89	1,750.11
1,762	17.62	5.74	11.88	1,750.12
1,763	17.63	4.76	12.87	1,750.13
1,764	17.64	3.78	13.86	1,750.14
1,765	17.65	2.80	14.85	1,750.15
1,766	17.66	1.82	15.84	1,750.16
1,767	17.67	.84	16.83	1,750.17
1,768	17.68	....	17.68	1,750.32
....	....	....	....	.....
....	....	....	....	.....

[6] For example assuming individual exemptions to start at $600, for each dollar above $600 that income rises, the exemption might decline one dollar, thereby increasing the tax base two dollars for each one dollar increase in adjusted gross income.

[7] See Harold M. Groves, "Toward a Social Theory of Progressive Taxation," *National Tax Journal*, Vol. IX, No. 1, March 1956, pp. 27-29, for a historical outline of theory dealing with progression.

sivity should be evaluated. To facilitate this process, legislatures should formulate an explicit, quantitative definition of an optimum schedule of progression —or for that matter regression. Since economists are so far unable to decide just what level of progression is justified on what grounds, legislatures can expect little help from tax theorists in defining an optimum schedule. The alternative seems to be acceptance of the allegation that progressivity is a moral matter and must be decided by the "popular will." Under such circumstances it does not appear to matter much whether "optimum" is defined in terms of impact upon the distribution of economic power, or with regard to the marginal utility of money, or on the basis of aesthetic judgements, or with national economic goals in mind.

Policy Implications and Administrative Considerations. Thirty-one states presently employ personal income taxes.[8] Of these, only 16 employ source withholding, but all save New Hampshire require information returns to be filed annually. Six of the 31 grant personal tax credits, all in continuing form, while the remainder grant exemptions, also in the continuing form. Thus: 1) 15 states can look to source withholding as a potential curb to evasion, 2) all 31 might benefit from a re-evaluation of their information return requirements, and 3) each can look to altering personal tax credits or exemptions in order to increase yields. No summary of the extent to which cooperative auditing is practiced is readily available, but as the highly satisfactory experience of Wisconsin and other states indicates, it is to be highly recommended.

The federal income tax structure could also benefit from legislative consideration of vanishing exemptions. The equity arguments apply in the same way at the federal level, and the revenue raising power of such a modification would prove an excellent fiscal tool if inaugurated in a year of inflationary pressure. However, both interesting and significant, a Congressional document which summarizes the various tax proposals that have come before the Congress in recent years discusses personal credits, but contains no mention of vanishing exemptions or credits.[9] The haze which clouds relationships brought about by minimum income protecting measures appears to be all-enveloping; yet because of the magnitude of federal income taxation, nowhere are vanishing exemptions more necessary than at the federal level.

The actual Arkansas experience compared with the potential which would be realized were cooperative auditing and source collection adopted demonstrates vividly the folly of low auditing and research budgets in state revenue offices. Had Arkansas' income tax division been sufficiently staffed, it could have performed a census or sampled returns each year and compared them with federal results. On the basis of this information, it could have then established the audit procedures which would have been most effective in improving compliance. The $1.49 million potential increase in revenues had evasion been reduced to federal totals is striking testimony against such penny-wise and pound-foolish budgeting.

[8] See Commerce Clearing House, *State Tax Guide*, Second Edition, Section 15 for data on state personal income taxes.

[9] *The Federal Revenue System: Facts and Problems, 1959.* Materials assembled by the Committee Staff for the Joint Economic Committee, Congress of the United States, United States Government Printing Office, Washington, 1959, pp. 16-18.

A second policy implication of this study is related to the rate at which credits or exemptions vanish. Expenditure demands can easily be anticipated by state budget officers, probable tax receipts can be estimated in much the same way that the potentials were developed for this study, and the two may be combined to produce an estimate of imminent surplus or deficit. By legislative action which alters the rate at which credits or exemptions vanish, the state budget can then be brought into balance with relative ease; this would eliminate dependence upon last minute budget slashes which demoralize legislator, administrator, and taxpayer alike.

There is an advantage in varying credits or exemptions over increasing or decreasing the rate of progression, which would accomplish the same end. Changes in credits or exemptions would affect the heavily populated income brackets; thus, a minor modification would produce a large revenue change while relatively greater changes in progression must be employed to achieve the same revenue results.

Again the question of equity unavoidably comes into the discussion. The alteration of speeds at which credits or exemptions vanish affects progressivity. Here the progressivity argument is also pertinent, and it may be decided that once exemptions or credits are made to vanish, tax yields and rates should be made to vary in other ways.

The high return over cost aspects of source withholding and better auditing are self-evident, a modest staff increase could handle the additional work with ease. What are the costs involved in inaugurating vanishing credit or exemption systems? They would be incidental. Most states use optional tax computation tables which could be altered to reflect vanishing exemptions or credits. In those states that do not use optional tables and for those individuals that prefer to compute their taxes, the formula for computing the exemption or credit's value or a schedule relating the exemption or credit to each income level could be published.

Conclusions: The reformation of state income taxation in order to enhance distributive justice can result in significant revenue increases. The most inequitable practice conceivable is to allow large-scale evasion to continue, thereby allowing the honest or unimaginative to pick up the tab for enterprising but dishonest citizens. As shown, the reduction of evasion can yield a high rate of return over cost. The introduction of vanishing exemptions is an alternative open to all states which tax personal income and would contribute a great deal both to enhancing equity in personal income taxation and increasing revenues.

COMMENTS ON THE FEDERAL EXCISE TAX FOR COMMON CARRIER NON-BUSINESS TRAVEL

HERBERT E. NEIL, JR.*

THE Federal Excise Tax on passenger travel by commercial transportation has been attacked as a discriminatory levy on those individuals who utilize the services of the common carriers. The current study is designed to contribute to knowledge about which income groups in the population are the principal users of common carrier transportation and thus bear the cost of the present 10 per cent excise tax.

Installed as a war tax in 1941 to raise revenue and to discourage non-essential civilian travel, the excise levy has remained on the tax books for the 14 years since World War II ended. This continuance is in sharp contrast to the World War I excise tax on common carrier travel which was repealed in 1921. The tax rate was reduced in 1954 to its current level from a maximum wartime rate of 15 per cent. As amended in 1956 the excise tax on the transportation of persons now provides for a 10 per cent tax on the price of tickets by rail, motor vehicle, water, or air paid in the United States for travel within the United States and to points outside the United States which are within 225 miles of the boundary. The annual yield of the passenger excise tax is about $235 million per year, but to the extent that common carrier travel is for business purposes the loss to the Treasury in repeal of the tax would be less than $235 million.

The proponents of repeal of the tax have stressed the carry-over of the wartime purpose of discouraging travel to the postwar period when the tax has hindered the common carriers in increasing passenger travel. The total number of domestic intercity passenger miles traveled by air, rail, and bus dropped off sharply in the years following World War II from over 91 billion in 1946 to 56 billion in 1950. In the 1950's the trend for the total common carrier market has been rather flat, with yearly fluctuations between the 1950 figure of 56 billion and the 63 billion passenger miles of both 1952 and 1957.[1]

The total figure, however, fails to indicate the changes in relative market penetration of the three separate modes, air, rail, and bus. Total domestic intercity air passenger miles have more than quadrupled from less than 6 billion in 1946 to over 25 billion in 1957, surpassing total rail miles for the first time in the latter year. This rapid increase in air travel has enabled the airlines to boost their share of the total common carrier passenger mile market from 6 per cent in 1946 to 40 per cent in 1957. The airline advance has been largely at

* The author was a Research Assistant in the Research Seminar in Quantitative Economics of the University of Michigan when this study was conducted. The article is based on a project of the Research Seminar. The author is indebted to John B. Lansing for many helpful suggestions in the course of carrying out the empirical work and in the preparation of the manuscript.

[1] Air Transport Association of America, *Air Transport Facts & Figures, 19th Edition 1958*, pp. 27-28.

the expense of the rails, who have seen their 59 billion passenger mile market in 1946 fall yearly to a 1957 level of 22 billion, or from 65 per cent of the common carrier total in 1946 to only 35 per cent of a smaller total in 1957. Pullman travel has experienced the sharpest decline in the rail total, slipping from 20 billion passenger miles in 1946 to slightly over 5 billion in 1957. The total passenger distance by bus has also declined since World War II, but the bus lines have been more successful than the railroads in maintaining their relative share of the total common carrier traffic. Domestic intercity passenger miles recorded by buses in 1957 were 10 billion below the 1946 figure of 26 billion. The 1957 mileage was 25 per cent of total common carrier passenger miles as compared with 29 per cent of the market in 1946.[2]

The following discussion of the allocation of the passenger excise tax among income classes is based on data collected in 1955, 1956, and 1957 in a National Travel Market Survey conducted by the Survey Research Center of the University of Michigan.[3]

Methodology

In each of the three years interviews were taken in 66 primary sampling units, including the twelve largest cities in the country and 54 other counties (or groups of counties). Smaller geographical areas were selected from the primary sampling units, after which separate dwelling units within each area were designated as the basis of the sample. An interview was taken with either the husband or wife, chosen on a random basis, for each family in the dwelling unit. Questions were asked the respondent about trips he took by rail, air, and bus in the twelve months prior to the interview. Information on trips taken by extra adults (other than husband and wife) in the family was also secured from the respondent. The study was thus based on a cross-section sample of the adult population in the United States. Since the interviews were taken in two or three waves during different seasons in each of the three years and questions were asked about trips taken in the previous twelve months the data on travel for any interview year does not coincide exactly with the calendar year.

The analysis discussed here is concerned only with "non-business" trips by common carrier to a point 100 miles or more away from home. Non-business trips are defined as travel for pleasure or personal reasons and do not include trips taken in connection with one's work.

By including only those trips of at least 100 miles we restrict the study to a limited portion of total intercity common carrier travel. This is particularly evident in the case of bus and rail travel. The average distance for all intercity bus trips is 70 miles[4] for the 1955-1957 period, while the Surveys for the three years give the average bus trip of over 100 miles at 330 miles. The comparable figures for rail travel are 130 miles[5] for all trips and 500 miles for Survey trips of over 100 miles.

[2] Air Transport Association of America, *op. cit.*

[3] A more complete statement of the methods used in the travel surveys is contained in *The Travel Market 1955* by John B. Lansing and Ernest Lilienstein, Institute for Social Research, Ann Arbor, Michigan.

[4] National Association of Motor Bus Operators, *Bus Facts, 27th Edition*, p. 14.

[5] Interstate Commerce Commission, *Seventy-First Annual Report on Transport Statistics in the United States for the Year Ended December 31, 1957*, Part 1, p. 30.

The air distances show a much smaller discrepancy in relative terms, 490 miles[6] for all trips and 840 miles for trips of over 100 miles. However, this difference still appears large since the proportion of air trips which are less than 100 miles is low. Three explanations can be given for this rather large discrepancy. First, a trip involving several legs, such as travel by a passenger from New York to Miami to Los Angeles to Minneapolis and back to New York with stopovers at each of the cities, is considered just one trip by the Survey and the distance recorded is that of New York to Los Angeles. The destination of the trip for distance tabulation is considered to be that point at which the passenger is farthest away from home. This procedure tends to raise the average distance of trips as compared with a method which designates the above example as four trips of shorter length. Secondly, the Survey distances given here are for only single mode trips. Multiple mode trips (employing two or more types of transportation on one trip) may well involve shorter distances by a given mode than in the case where the entire trip is made by one mode. Finally, all Survey distance figures are based on the most recent common carrier trip taken by an adult. It is quite possible that a respondent will recall a longer second trip which he took as the most recent trip while in effect his shorter trip was the most recent travel. To the extent that these three phenomena operate the Survey distances used in this analysis are on the high side for all three modes.

Since the study focuses on which income groups pay the transportation excise tax, it is only correct that business travel be disregarded in the analysis. Business travel expense is not borne by the consumer of the service since most business travel charges are reimbursed by employers. The surveys for the three years show that 55 per cent of all air trips to distances 100 miles or more away from home are business trips, 35 per cent of the corresponding rail trips are for business purposes, and 20 per cent of the bus trips fall in the business category.

Distribution of the Transportation Excise Tax

To determine the portion of the transportation excise tax paid by each income class we would ideally like to know the total annual amount spent by each family on common carrier travel together with the family's income. A first approximation to the income distribution of common carrier travel is given in Table I. Here the average number of trips taken per year during 1955-1957 for adults in a given income class is tabulated for each mode of travel. The income class of the respondent is the income class of the family of which he is a member. These averages were arrived at after combining information for the three years, 1955, 1956, and 1957 which resulted in a sample of 16,865 adults.

The number of air trips per adult rises sharply as income increases, reaching a level of nearly one trip per adult for the over $20,000 class. This compares with an average of .02 trips per adult for people in the under $2,000 income group. Rail also shows a greater use of the mode by the three highest income classes, above $10,000, compared with the rest of the population. Those adults with the very low incomes of less than $1,000 clearly take fewer rail

[6] Air Transport Association of America, *op. cit.*

trips. However, for the 85 per cent of the population with incomes between $1,000 and $10,000 there is no neat relationship between income and number of non-business rail trips. Income is thus not as critical a factor in rail travel as it is in the case of air. Frequency of non-business bus travel reaches its peak in the $1,000-$3,000 income class. Once again the very low income adults, those with an income of less $1,000, travel less by bus than those people in income levels immediately above them. The table also indicates that the 29 per cent of the adult population with an income of more than $6,000 per year are the least frequent non-business bus travelers. In summarizing the relationship between income and number of non-business trips per adult by each of the three common carriers it is evident that air travel is a high-income service, bus is a low-income service, and rail somewhere in between, but more frequently purchased by high-income adults.

Number of trips per adult is only a rough estimate of the total expenditure on common carrier travel. Distance traveled, type of ticket purchased (coach or first class), and the amount paid for children's travel modify the results shown in Table I. To take account of these factors we analyzed the information available on the most recent common carrier trips taken by adults. We applied these results to all common carrier trips, thus making the assumption that the most recent common carrier trips by a given mode are representative of all the other non-business trips by the same mode taken by a given adult over a year. None of the most recent trips which involved multiple-mode travel were utilized in the analysis. Twenty-two per cent of the non-business air trips, 23 per cent of the rail trips, and 24 per cent of the bus trips are finally used as representative of all non-business trips.

It was expected that the distance of trips taken would vary among income classes for each of the three modes. However, the analysis failed to indicate a relationship between income and distance for any of the three modes. There is no tendency for low-income adults to take shorter or longer trips than high-income air, rail, or bus travelers. Moreover, there is considerable variation in the average distance traveled per trip within a number of income classes from year to year. Since the average distance of all trips by a given mode changes little annually, the relative ranking of income classes by distance per trip fluctuates among the three years. Therefore, the average distance of all trips in the three years by each mode is used for each income class in further computations. The average distance figure for air trips is about 840 miles, rail trips 500 miles, and bus 330 miles. The relationship between income and distance traveled is evidently accounted for by the choice of mode. Low-income people take shorter trips than

TABLE I

FREQUENCY OF COMMON CARRIER TRAVEL BY INCOME CLASS

Average number of non-business trips per year per adult in 1955-1957

Income	Air	Rail	Bus
Under $ 1,000	.03	.07	.09
$ 1,000– 1,999	.02	.12	.13
2,000– 2,999	.03	.15	.14
3,000– 3,999	.04	.12	.10
4,000– 4,999	.08	.17	.09
5,000– 5,999	.08	.17	.11
6,000– 7,499	.12	.14	.07
7,500– 9,999	.14	.18	.09
10,000– 14,999	.24	.22	.09
15,000– 19,999	.68	.26	.05
20,000 and over	.98	.61	.08
All incomes	.10	.16	.10

high-income adults, but this phenomenon is displayed in the type of common carrier utilized. Low-income adults are the most frequent users of bus where the average trip is relatively short while the high-income people concentrate their common carrier travel on the airlines and trains where the average trip is longer.

Since the price paid for transportation is determined by the type of accommodations as well as the distances of the trips, it was necessary to divide air and rail trips between coach and first-class travel. All bus trips are treated alike. The data indicate that higher-income people are more likely to travel first class than are low-income adults when taking either a plane or a train trip. The probability of traveling first class, given a trip was taken, is fitted by least squares to income for air and rail non-business trips with the following results:

Air: $FC = .548 + .011\ Y$ $R^2 = .033$
$(.003)$ $N = 315$

Rail: $FC = .139 + .020\ Y$ $R^2 = .065$
$(.003)$ $N = 567$

FC = probability of taking a first class trip

Y = income

Sixty-five per cent of all air trips and 25 per cent of the rail trips for 1955-1957 involved first class travel. It is not surprising that the correlation is low for both air and rail since the consumer, once he has selected a mode, often has no choice as to the class of travel he can utilize. Air coach is available only between the larger cities of the country. On the other hand, coach travel is the only type of rail transportation available between many smaller cities. However, for both air and rail travel the regression coefficient for income is significantly different from zero. The number of first-class air and rail trips for each income class is determined on the basis of the two above equations. The 1955 data indicate that the average first-class trip by either air or rail is approximately 100 miles longer than the average coach trip. This tendency seems to exist at all income levels. However, the average distances of all trips are used in further analysis for both first-class and coach trips. Since this difference is ignored we may be slightly overestimating the cost of air and rail travel to the lower-income classes relative to the higher-income classes. The results also make no allowance for family plan travel where a second adult travels at half-fare since this information is not available from the data. To the extent that wives travel with their husbands on the days of the week and in the seasons of the year which qualify for the reduced rate we are placing too high a charge on that type of transportation.

Children's travel is the final adjustment which we considered making in the results shown in Table I. We had expected that families with higher incomes would be more prone to take their children on trips. A preliminary analysis of the 1955 data indicated that this is true for air travel; the reverse is the case for bus trips, and middle class families are most likely to include their children if the trip is by rail. For all three modes, however, the adjustment in total cost for the inclusion of children is relatively minor. Most adults do not take their children, if they have children, and most of the children who do accompany their parents pay nothing or one-half the adult fare. Only 6 per cent of all adults who traveled by air or bus in 1955 took children with them, while 8 per cent of the rail passengers included children in their travel.

Using only the 1955 data we found that the average number of children accompanying adults who took their children on air trips was 1.5. However, most of these paid half-fares because they were between the ages of 2 and 11, less than 30 per cent paying the regular price. The average number of children for rail travel was also 1.5 with less than 20 per cent of all children paying a full fare. Moreover, over 40 per cent of the children who accompanied their parents were under 6 years of age and so paid nothing. The average number of children who went with adults who took their children was slightly higher for bus travel, 1.8. In the case of buses, 30 per cent of the children were under 6, paying no fare, and 40 per cent were 12 or over, paying the full adult price. The addition of children travelers added about 5 per cent to the total number of full fares for each of the three modes. The 1955 data also indicate that people who travel with children take somewhat shorter trips than those without children. This would further lessen the effect on the final result by bringing in the travel of the children who accompany their parents. Since the final adjustment would be so small and it would not affect any income class appreciably, we ignored the travel of children in calculating the cost of non-business common carrier transportation. The Survey contains no information on travel by children without their parents. This type of travel may be of consequence for the buses, since over 30 per cent of the bus travelers are between the ages of 10 and 19.[7] It is likely that many of these younger bus passengers are adolescents taking trips of less than 100 miles. Our analysis. of course, is directed toward only trips of more than 100 miles.

Translating the number of trips given in Table I, average distance of trips by a given mode, and the adjustment made for class of travel into dollars and cents gives Table II, where the average annual cost of travel by each of the modes and all three combined are shown by income class. The average number of trips given in Table I is divided between first class and coach travel for air and rail on the basis of the two regression equations. The average distance of all trips by a given mode is then used in arriving at the final cost of travel for each income class. The cost figures are based on the revenue per passenger mile in 1957, 4.25 cents for air coach, 5.85 cents first class air travel, 2.71 rail coach, 3.68 first class rail, and 2.15 cents for bus.[8] All dollar figures are calcuated before excise taxes are added.

The amount spent on air travel rises rather sharply as income increases, reaching a level over 50 times as high for the $20,000 and over income class as compared with the under $2,000 group. Rail travel cost is significantly lower than the average for only the lowest income class, under $1,000, and higher only at the income levels above $10,000. Since there is no splitting of bus travel between coach and first class, the cost figures are merely a reflection of the average number of trips in each income class. The $1,000-$3,000 income recipients are the most frequent bus travelers and consequently spend correspondingly more on bus trips. In combining the three modes we find that the amount spent on common carrier travel rises with income in a regular fashion. The cost of air trips with its

[7] Tabulation made by the *Life Survey of Consumer Expenditures.*

[8] Air Transport Association of America, *op. cit.*

concentration at the higher-income levels outweighs the opposite tendency in bus travel.

The percentage of the total transportation dollar spent by the various income classes is shown in the accompanying chart. It gives the share of the dollar spent for air, rail, and bus that can be allocated to those adults with an income under a certain level. The cumulative per cent of adults below a given income level is also plotted to indicate the division of the mode dollar if each adult spent an equal amount on common carrier transportation. Only the bus curve lies above the adult population curve. The bus curve crosses the adult curve at the $1,000 level and rises steeply until $4,000 income is reached, indicating that the largest share of the bus dollar relative to population is spent by adults in the $1,000-$4,000 income bracket. The 36 per cent of the adult population in this income bracket spends 43 per cent of the total expenditures on non-business bus trips of over 100 miles. The air curve lies far below the population curve through most of the scale. Thus, air travel is predominantly a service used by the portion of the population with high incomes. The 13 per cent of the population with incomes over $7,500 account for one-half of the total expenditures on non-business air travel. The increased popularity of air travel at higher income levels is seen throughout the income scale. The 3 per cent of the adult population above the $15,000 level spend one-quarter of the total non-business air dollars. The rail dollar curve also indicates increased expenditures at higher income levels, but the tendency is not nearly as sharp as in the case of air. Here, the over $7,500 income group spends 26 per cent of the railroad dollar, while the adults with an income of over $15,000 account for 9 per cent of the total expenditures on non-business rail trips of over 100 miles. The curve for all three modes of travel lies between the air and the rail curves. The income effect of air travel is tempered by rail and bus, but total common carrier transportation remains a service utilized relatively more often by the higher-income population. The 29 per cent of the population with incomes over $6,000 spend 52 per cent of the total expenditures on non-business common carrier travel of over 100 miles, the 8 per cent above $10,000 account for 27 per cent of the total dollars spent on commercial transportation, and the highest 1.2 per cent of the population in income spend 10 per cent of the total dollars.

TABLE II

COST OF COMMON CARRIER TRAVEL BY INCOME CLASS

Average annual amount spent per adult on non-business trips in 1955–1957 before excise taxes

Income	Air	Rail	Bus	All modes
Under $ 1,000	$ 1.12	$ 1.02	$.65	$ 2.79
$ 1,000– 1,999	.75	1.73	.93	3.41
2,000– 2,999	1.22	2.23	.98	4.43
3,000– 3,999	1.80	1.71	.73	4.24
4,000– 4,999	3.65	2.53	.62	6.80
5,000– 5,999	3.48	2.59	.79	6.86
6,000– 7.499	5.27	2.13	.48	7.88
7,500– 9,999	6.07	2.67	.64	9.38
10,000– 14,999	10.69	3.35	.64	14.68
15,000– 19,999	31.14	4.22	.38	35.74
20,000 and over	47.52	10.78	.53	58.83
All incomes	$ 4.26	$ 2.35	$.71	$ 7.32

The relative importance of a given type of expenditure to a consumer can be measured by the percentage of his income spent on the good in question. Table III gives the share of income expended on air, rail, bus, and all three modes combined. For each of the three

modes the income class which spends the largest share of its income on the respective type of travel is the under $1,000 group. The high percentage of income spent on air at the lowest income level, nearly ¼ of 1 per cent, may well be the effect of travel by individuals who currently have an unusually low income relative to past or future income. Retired people, young single adults [9] and independent businessmen who suffer losses in a particular year would be in this situation. For both rail and bus travel the percentage of income spent on trips falls with an increase in income, declining more sharply in the case of bus. The result for air is not nearly so clear as for the other two modes. The table indicates that high-income adults spend a larger proportion of their income on air trips than do low-income people, particularly if we compare the over $10,000 income class with the $1,000-$4,000 group. There is no neat relationship running through the entire income scale, though. The column for all modes combined shows that the share of income expended on common carrier transportation falls as income increases up to $4,000 and later rises again for the income level above $15,000. For the middle-income range, the percentage of income spent on non-business trips by air, rail, and bus appears to be lower than for either the low-income or high-income classes. However, within this $4,000-$15,000 group there is no significant trend.

TABLE III

PER CENT OF INCOME SPENT ON NON-BUSINESS COMMON CARRIER TRAVEL BY INCOME CLASS FOR 1955–1957

Income	Mean income *	Air	Rail	Bus	All modes
Under $ 1,000	$ 500	.22%	.20%	.13%	.56%
$ 1,000– 1,999	1,500	.05	.12	.06	.23
2,000– 2,999	2,500	.05	.09	.04	.18
3,000– 3,999	3,500	.05	.05	.02	.12
4,000– 4,999	4,500	.08	.06	.01	.15
5,000– 5,999	5,500	.06	.05	.01	.12
6,000– 7,499	6,700	.08	.03	.01	.12
7,500– 9,999	8,600	.07	.03	.01	.11
10,000– 14,999	12,000	.09	.03	**	.12
15,000– 19,999	17,100	.18	.03	**	.21
20,000 and over	35,700	.13	.03	**	.16

* Mean income figures for the income classes are averages for the three years, 1955–1957, rounded to the nearest hundred dollars, taken from Goldsmith, Selma F., "Income Distribution by Size 1955–1958," *Survey of Current Business*, April, 1959, p. 14.

** Less than .005 per cent of income.

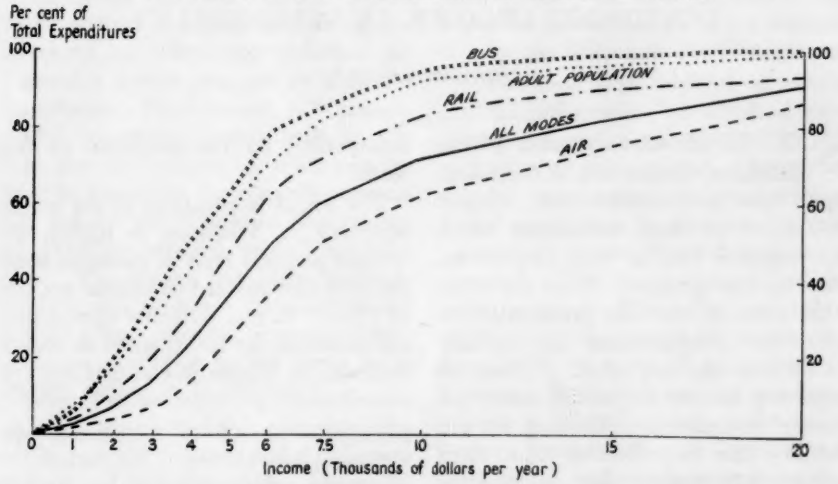
Since the present excise tax is applied on a straight percentage basis to the price of common carrier tickets, the burden of the excise tax falls on the various income classes in the same manner as the percentage of income figures given in Table III. Both the tax on rail and bus are definitely regressive, particularly for the buses, while the tax on air travel appears to be for the most part progressive. In measuring the burden of the total excise tax a U-shaped relationship results. The tax is regressive at the low income levels, proportional in the middle income brackets, and somewhat progressive at the very high levels. The relatively frequent use of bus at the low-income levels and the extensive use of rail and air, particularly the latter, at the very high-income levels causes this relationship between burden of the excise tax and income.

The excise tax on common carrier passenger travel as it now stands places a particular hardship on the lower-income members of the society. Many of these people do not own automobiles and are obliged to turn to the common carriers for transportation. In a ma-

[9] Lansing, John B. and Blood, Dwight M., "A Cross-Section Aanalysis of Non-Business Air Travel," *Journal of the American Statistical Association*, December, 1958, Vol. 53, p. 944.

CHART I

CUMULATIVE PERCENTAGE OF EXPENDITURES ON COMMON CARRIER TRAVEL



jority of cases this means selection of the cheapest mode, bus. However, since the low-income adults are also the most frequent travelers on the buses, the lower cost of bus trips is not great enough to offset the relatively large number of bus trips. If account were also taken of the majority of the bus trips under 100 miles, the burden on the low-income people would be more evident than our calculations indicate.

A repeal of the excise tax on bus and rail travel would, of course, eliminate this burden on the low-income travelers. Since air is not a popular mode of travel for the low-income people, retention of the air excise tax would place the tax burden to a much greater extent on the income recipients above $10,000. From an ability to pay standpoint, this analysis points to a favoring of the rails and buses at the expense of the airlines through a transportation excise tax levied only on air passenger travel. As the postwar trend figures for common carrier travel given above show, a tax limited to air travel alone would place the entire transportation tax upon the mode which has enjoyed a rapidly expanding market while giving relief to the two modes which have had a decline in their business during the postwar period. Other considerations besides the ability to pay of users of common carrier travel would, of course, have to be considered in altering the present 10 per cent tax. However, as it now stands the federal excise tax bears heavily on a portion of the population least able to afford it.

TAXPAYER COMPLIANCE IN REPORTING DIVIDEND INCOME IN WISCONSIN †

NORMAN ADLER *

SUCCESSFUL administration of the individual income tax is dependent upon the development and efficient utilization of those techniques which are required for, or best adapted to, mass income taxation. From the technical point of view the problem of income tax administration can logically be divided into two parts: (1) returns reporting income for which either the tax or information concerning the tax liability can be collected from third parties; (2) returns that are based in large measure upon information that for the most part can only be disclosed by the taxpayer himself. The first type of return involves the receipt of wages and salaries, interest, dividends, and commercial rents; the second covers farm, business, and professional income.

As with other income receipts of the first type, the two administrative techniques which can be used in enforcing the tax with respect to dividends are withholding or collection at the source, and information at the source. Under withholding, the payor of the income collects the tax for the government; under information at the source, the payor furnishes the tax authorities with information on the payments he has made.

The use of information at the source reporting in Wisconsin is highly developed and has been in existence since the state first enacted its income tax law in 1911.[1] It was generally agreed that the provision for information at source reporting in Wisconsin's income tax law contributed a great deal to its successful administration. After several years of operation it was stated: " No part of the Wisconsin income tax law has worked with such smoothness and satisfaction as that relating to information at source." [2]

Wisconsin is fully committed to match all information reports it receives reporting dividend payments of $100 or more, and its matching and follow-up of these returns is both efficient and timely. All corporations licensed to do business in Wisconsin are required to file information returns for dividend payments of $100 and over, and many national corporations not doing business in the state also file reports on dividends paid to Wisconsin residents.

* The author is an economist in Washington, D. C.

† The material contained in this article is based upon work done for a doctoral dissertation at the University of Wisconsin under the supervision of Professor Harold M. Groves. The author would like to express his appreciation to Professor Groves for his guidance and to the Wisconsin Department of Taxation for the complete cooperation of its staff.

[1] The history of state income taxes up to 1911 was almost entirely a record of failure. With almost no exceptions the administration of the laws was poor, the yields small, and the taxes generally unpopular. Wisconsin opened a new chapter in the history of state income taxation with the adoption of its income tax law in 1911. The Wisconsin statute was well written, the administration of the tax was placed in the hands of a strong, efficient Tax Commission, and the law was effectively enforced.

[2] *Proceedings of the National Tax Association Conference* (1915), p. 322.

Consequently, it was felt that a study of compliance by Wisconsin taxpayers in reporting dividend income would be of interest generally in showing the effect of an adequately enforced information return program on taxpayer compliance. Furthermore, a Wisconsin study was made feasible both by the fact that tax returns in Wisconsin are open to inspection for research purposes and because the Wisconsin Department of Taxation pledged its full cooperation. The pledge was fully honored; without this assistance the study would not have been possible. This paper presents the results of such a study made by the author in 1957-1958.[3]

AN EMPIRICAL STUDY OF TAXPAYER COMPLIANCE IN THE REPORTING OF DIVIDEND INCOME

Income tax compliance in Wisconsin should be a case of compliance at its best, not only because of the state's top-notch enforcement program, but also because of the excellent cooperation between the federal and state tax administrations.[4]

Methodology

The first step involved the securing of data on the amount of dividends distributed to each stockholder in a sample of the income tax universe. This was accomplished by securing the names, addresses, and amount of dividends distributed to each stockholder during 1955 by a moderate-sized Wisconsin manufacturing company. This information was obtained during the course of an official audit of the corporation by the Wisconsin Tax Department.

The second step consisted of matching the information on dividend payments against the returns filed by the recipients of this income. The results of this comparison do not measure actual compliance because some of the unreported income does not have to be reported. This is a matter of legal requirements: in Wisconsin, individual income recipients must file if they receive $600 or more of gross income.[5] However, the more important non-compliance is related to non-reporting of income upon which a tax would have been levied had the income been disclosed. This would occur only where such non-reporting exceeds the limit at which the tax on net taxable income, that is, adjusted gross income minus personal deductions, rises above the tax value of personal exemptions.[6] By the elimination of income below the filing limit and that upon which no tax would have been due, a measure of compliance in the reporting of dividend income having a tax liability can be obtained.

The greatest amount of difficulty encountered in carrying out these steps involved the treatment of the dividend income known to have been received by stockholders who did not file tax returns. Here without direct auditing or " detective " work it is impossible to obtain information either as to the other income of the taxpayer or as to the

[3] The complete results of this study have been included in the author's doctoral dissertation: *The Administration of the Individual Income Tax with Respect to the Receipt of Wages and Salaries, Interest, and Dividends*, University of Wisconsin, Madison, 1958, Chapter XIV.

[4] For a discussion of the results of this cooperation see Norman Adler, " Federal-State Cooperation in the Administration of the Income Tax—The Wisconsin Experience," *National Tax Journal*, Vol. XII, Sept. 1959, pp. 193-203.

[5] The filing requirement is also stated in terms of net income: a married person is required to file if net income when added to the spouse's net income totals $1,400 or more.

[6] In Wisconsin a tax credit of $7 is allowed for each personal exemption.

personal deductions and exemptions to which he is entitled. Fortunately, the "non-filer problem" turned out to be of minor proportions in this study.

In the case of those returns in the sample which were available it had to be assumed that all other income on these tax returns had been reported correctly. Without studying all kinds of income at the same time, this assumption was, of course, unavoidable.

Various measures of compliance can be obtained. Compliance can be expressed in terms of total amount reported, or it can be computed in terms of net error, with overreporting not being counted. Thus if net income of A and B is $100 in each case and A reports $80 and B $120, compliance can be reported as 100 per cent ($200 reported) or 90 per cent ($180 reported). Both of these ratios might have some value: the first indicates the aggregate score by type of income, and the second, the degree to which taxpayers have complied with the law.

In order to get as complete a picture as possible of the degree to which dividend receipts are reported by Wisconsin taxpayers the following measures of compliance were computed:

1. Total dividends reported on tax returns as a percentage of the total amount of dividends distributed to the stockholders in the sample. Here it is assumed that all the stockholders have a filing liability.
2. Total dividends reported on tax returns as a percentage of the total amount of dividends distributed to stockholders with a known filing liability.
3. Total dividends reported on tax returns of stockholders with a known tax liability as a percentage of the total amount of dividends distributed to them.
4. Total compliance by stockholders with a known tax liability, but treating overreporting the same as perfect compliance, and subtracting the amount overreported from total dividends reported by these stockholders.

With the exception of ratio 1, all these measures of compliance exclude the dividends distributed to stockholders who did not file tax returns. This, of course, gives these compliance scores an upward bias. In order to take account of this, ratios 2 and 3 were recomputed on the basis of various assumptions as to the degree of compliance experienced by the non-filer group.

After obtaining these compliance scores, the group of stockholders who clearly had a tax liability were analyzed with respect to the relation between compliance and the size of the recipient's total income, and compliance and the size of the dividend payment.

Since Wisconsin requires the filing of information returns on all dividend payments of $100 and over, and completely matches these reports against the corresponding tax returns, it is of particular interest to compare the degree of compliance for payments above and below the filing limit.

Summary of the results

The sample used in this study was composed of 433 stockholders reported by the company to be living in the Milwaukee tax district.[7] After checking the dividend payments made to this group of stockholders against the dividend income reported by them on their

[7] The State of Wisconsin is divided into four tax districts, with the Milwaukee tax district being the largest.

tax returns filed in the Milwaukee district office, 30 cases were eliminated from the original sample, leaving a final sample of 403 stockholders. The excluded group included thirteen cases where the stockholder was listed as a dependent on his parent's tax return thus indicating that no filing liability was involved; five cases where the payee did not itemize his dividend receipts showing who the payor was; one case where the recipient was a corporation; and one case involving very substantial overreporting where a strong possibility existed that the information obtained from the corporation's books concerning this dividend payment was in error.[8] The elimination of this case was necessary because its inclusion would have offset almost all of the underreporting that was found to have occurred on the returns filed by the stockholders remaining in the final sample.

The over-all results of the study are summarized in Tables I and II. Of the final sample of 403 stockholders, 1955 tax returns could not be located for 67, or 17 per cent, of them. These nonfilers received $6,242, or 16 per cent of the total amount of dividends distributed, representing an average dividend payment of $93, which is a little less than that for the entire sample—$99 per stockholder. A check of several city directories revealed listings for many of these non-filers as widows and in the case of male stockholders the directory in many instances did not give any evidence of their being employed or having a business of their own. This would seem to indicate that many of these stockholders did not have any filing and/or tax liability. Only one of these non-filers received a dividend payment equaling or exceeding the filing limit ($600 or over of gross income).

Almost 88 per cent of the 336 stockholders who filed 1955 tax returns reported the dividends distributed to them in full and only 9 per cent underreported or failed to report their dividend income. Twenty-five stockholders failed to report the dividends distributed to them, and six partially reported; the average amount underreported by these 31 stockholders was only $38. Ten stockholders, or 3 per cent of the total, overreported, the average amount overreported being only $23.

Of the total dividends distributed to the 403 stockholders in the sample, 82 per cent was reported as having been received by them. This is the lowest possible compliance score since it implies that all of the nonfiling stockholders had a filing liability. This is, of course, an unrealistic assumption to make since undoubtedly many of these non-filers had no filing and/or tax liability. With the dividends distributed to non-filers excluded the compliance score is 97 per cent. The highest possible compliance score is obtained when the dividends distributed to both the non-filers and taxpayers having insuffi-

[8] In this case the corporation's records showed the payment of a dividend of $100 during 1955, while the payee reported the receipt of $975 of dividend income from this source. The Assessor of Incomes for the Milwaukee tax district commented on this case as follows: "The 1955 return filed by . . . reports the receipt of dividends of $975 from the . . . Manufacturing Company. It would appear that this is the correct amount, although we do not have an information report on file from the corporation to verify it. A substantial amount was reported in 1954 and also in 1956." (Letter from W. Merrill Sawyer, Assessor of Incomes, Milwaukee district office, Wisconsin Department of Taxation, May 14, 1958.) Since all the data used in this study was confidential in nature, it was not thought advisable to seek further information from either the corporation or the stockholder.

cient income to incur a tax liability are excluded; the resulting score is about 97.5 per cent.[9] These latter two compliance scores are, of course, too high because they are based upon the assumption that none of the non-filers had a filing and/or tax liability.

The actual compliance score for the entire sample depends upon what assumptions are made about the stockholders who had not filed tax returns in 1955. If it is assumed that 10 per cent of the dividends distributed to this group went to stockholders who had a filing liability, compliance drops to 95 per cent; and if it is further assumed that 90 per cent of this sum was received by non-filers who had sufficient income to incur a tax liability the compliance score for taxpayers with a tax liability would be 96 per cent.[10] Even when it is assumed that 50 per cent of the dividends distributed to this group is subject to filing liability, and 90 per cent of this latter amount is received by non-filers having a tax liability, the compliance score for taxpayers with a tax liability only drops to 90 per cent.[11]

Although these compliance scores necessarily are based upon arbitrary assumptions, it would appear that the actual score probably lies somewhere between these two estimates. On the basis of what is known about the non-filer group it would seem that the compliance score is probably closer to the higher rather than to the lower estimate.

Of the 403 stockholders in the final sample, 321 had sufficient income to in-

TABLE I

SUMMARY OF DIVIDENDS RECEIVED AND REPORTED BY A SAMPLE OF 403 WISCONSIN STOCKHOLDERS

	Total	Non-filers	Filers who fully reported	Filers who partially under-reported	Filers who completely under-reported	Filers who over-reported
Number of cases	403	67	295	6	25	10
Per cent of total (%)	100.00	16.63	73.20	1.49	6.20	2.48
Distributed by corporation:						
Total ($)	40,087	6,242	31,127	716	978	1,024
Per cent of total (%)	100.00	15.57	77.65	1.79	2.44	2.55
To stockholders with a filing liability ($)	33,845	?	31,127	716	978	1,024
To stockholders with a tax liability ($)	32,857	?	30,467	641	803	946
Reported as received on tax returns by:						
Stockholders with a filing liability ($)	32,887[a]	0	31,127	510	0	1,250[a]
Stockholders with a tax liability ($)	32,084[b]	0	30,467	472	0	1,145[b]

[a] Includes $226 of overreporting.

[b] Includes $199 of overreporting.

[9] There were 23 stockholders having taxable incomes who failed to report any of the dividends distributed to them; this group accounted for 83 per cent of the known evasion on returns reporting sufficient income to incur a tax liability.

[10] These ratios were obtained from the data in Table I as follows: 1. 10% of $6,242 = $624. 2. $32,887 / $624 + $33,845 = 95%. 3. 90% of $624 = $562. 4. $32,084 / $562 + $32,857 = 96%.

[11] This ratio was obtained from the data in Table I as follows: 1. 50% of $6,242 = $3,121. 2. 90% of $3,121 = $2,809. 3. $32,084 / $2,809 + $32,857 = 90%.

cur a tax liability. This group of stockholders received 82 per cent of the total dividends distributed to all stockholders and as already indicated achieved a compliance score of about 97.5 per cent. Table III presents a summary of compliance scores by income class and by size of dividend payment. The compliance score for incomes of $10,000 and over is virtually perfect, while for incomes under $10,000 the score is between 95 and 96 per cent. Though all of these compliance scores are exceptionally high, nevertheless, there is some indication of improved compliance among the upper income taxpayers.

A comparison of compliance for dividend payments covered by information reports (payments of $100 and over) and those not covered produced scores of 99 and 93 per cent respectively. This indicates considerably better compliance for dividend payments which are subject to information at the source reporting than for those which are not. the final sample.

The unusually high degree of compliance found in this study is undoubtedly due to the fact that all dividend payments of $100 and over must be reported to the Wisconsin Department of Taxation. The fact that Wisconsin matches all information returns (of $100 and over) each year means that the recipients of "covered" dividends know that the state possesses knowledge

CONCLUSION

The results of this study reveal an exceptionally high degree of compliance. Our estimates range between 90 and 96 per cent, with the available evidence concerning stockholders not filing tax returns leading us to conclude that the actual compliance score is probably somewhat closer to 96 than to 90 per cent. The findings of the study are believed to possess a high degree of reliability, not only because of the size of the sample but also because of the small percentage of non-filing stockholders in

TABLE II

SUMMARY OF DIVIDEND INCOME COMPLIANCE SCORES FOR A SAMPLE OF 403 WISCONSIN STOCKHOLDERS

Group	Total dividends distributed	Total dividends reported as received on tax returns	Compliance scores
1. All stockholders	$40,087	$32,887	82.04%
2. Stockholders reporting with a known filing liability	33,845	32,887	97.17
3. Stockholders reporting with a known tax liability	32,857	32,084	97.65
4. Stockholders reporting with a known tax liability, but excluding overreporting	32,857	31,885*	97.04

* $32,084 – $199 = $31,885.

TABLE III

DIVIDEND INCOME COMPLIANCE SCORES BY INCOME CLASS AND SIZE OF DIVIDEND PAYMENT, FOR A SAMPLE OF 321 WISCONSIN STOCKHOLDERS HAVING SUFFICIENT INCOME TO INCUR A TAX LIABILITY

	Number of cases	Per cent of total	Average payment	Total received	Total reported on tax returns	Compliance scores
Total sample	321	100.00%	$102	$32,857	$32,084	97.65%
		By Income Class				
Under $5,000	121[a]	37.69	92	11,154	10,733	96.23
$5,000 and under $10,000	90	28.04	74	6,650	6,336	95.28
$10,000 and over	110	34.27	137	15,053	15,015	99.75
		By Size of Dividend Payment				
Under $100	205[b]	63.86	40	8,170	7,587	92.86
$100 and over	116[c]	36.14	213	24,687	24,497	99.23

[a] Fifteen stockholders who received $988 and reported $803 of dividend income have been excluded since their income was not sufficient to incur a tax liability.

[b] Eleven stockholders who received $508 and reported $493 of dividend income have been excluded since their income was not sufficient to incur a tax liability.

[c] Four stockholders who received $480 and reported $310 of dividend income have been excluded since their income was not sufficient to incur a tax liability.

of their receipt of this income, and this naturally acts as an incentive to honest reporting. It is thus clearly apparent that Wisconsin's information return program yields substantial benefits to the state in terms of accurate reporting of this source of income.

NTA NOTES

From the President

A very fine meeting of the Executive Committee was held at the Deauville Hotel, Miami Beach, Florida, on February 11th and 12th last. Notwithstanding the temperature (around 80°) with a large assist from "Ol' Sol," the Committee most conscientiously performed its tasks at hand through Thursday, February 11, and into the afternoon of February 12.

Unfortunately, the Vice President, Paul Alyea, was confined to bed unexpectedly and therefore was unable to attend (but he is fine now) and Messrs. Tom Byrne, City Tax Commissioner of Milwaukee and Donald Miller of the Continental Illinois National Bank and Trust Company of Chicago, were prevented from claiming their confirmed reservations due to a most untoward and unanticipated snowfall of substantial proportions in their respective habitats.

Notwithstanding weather to the contrary, the latter two members of the Committee offered to get through to the meeting place in one way or another should their attendance be required for a quorum. This is a typical illustration of the fine spirit of loyalty of the Executive Committee. We did have more than a quorum present but the offers were still most appreciated.

In view of the quality of the weather, as aforesaid, a member of the Committee insisted that the Fahrenheit reading and other climate conditions which prevailed during the Committee's travail, be recorded, but the suggestion was ruled out of order by the President on the grounds that no one would believe it anyway.

Plans are presently under way for a really outstanding Annual Conference in New York City next September 5th through 9th. The Honorable Joseph H. Murphy, President of the New York State Tax Commission, has been named Honorary Chairman of the Committee on Local Arrangements and has already demonstrated his willingness to assist and cooperate in every possible way toward the success of the New York meeting. Deputy Commissioner Nathan Mitchell of the New York State Department of Taxation and Finance will serve as Executive Chairman of the Local Arrangements Committee and is presently hard at work on his preliminary planning.

Dr. Chester B. Pond, Director of Research and Statistics of the New York State Department of Taxation and Finance, who has been a member of NTA for many years, will head up the Program Committee.

Incidentally, should any member of NTA have suggestions for subject matters to be considered by the Program Committee, please let them not be "shrinking violets" but transmit their ideas concerning the same either to Dr. Pond or to the undersigned.

WALTER W. WALSH
President

From the Executive Director

President Walsh has, as is evidenced by his notes, given great consideration to his appointments of the chairmen (honorary and executive) of the Committee on Local Arrangements and the chairman of the Program Committee. Nothing assures the success of, and the attendance at, any Conference on Taxation sponsored by the National Tax Association, more than the careful selection of the men to head these two important committees. By his outstanding choices and by his own personal interest and his business location in the city, President Walsh has given the necessary initiative to what may well be, and he personally believes will be, the largest conference in the history of National Tax Association.

Those who missed the Houston Conference lost out on a wonderful technical program as well as a program of entertainment which will be difficult to equal. But the appointments mentioned should give all members great anticipation of, and determination to, attend the New York Conference.

New York Conference

Although it may be repetitious, the following information is furnished:

53rd ANNUAL CONFERENCE ON TAXATION
STATLER HILTON HOTEL
NEW YORK CITY
SEPTEMBER 5-9, 1960

The opening reception will be on Monday, September 5 (Labor Day), and, therefore, the Conference, with an important subject for speeches and discussion on the final day (up till noon), will not conclude until Friday, September 9. I might here interpolate there were many regrets following both the Philadelphia and Houston conferences (1958 and 1959) on the part of attendants who checked out early and missed the final session on "Financing Public Education" at Philadelphia and on "The Impact of Present Supreme Court Decisions on State Taxation of Interstate Commerce" at Houston. So please plan to come for the "appetizers" (opening reception) on Monday (Labor Day) and stay for the "dessert" (final session) on Friday morning.

Now, as to the facilities and accommodations at the Statler Hilton, and as to its location: of course, those who attended the 1940 Conference will recall the adequacy of the same hotel (then called "The Pennsylvania") in every respect. Since then, there have been many improvements. Now all meeting rooms and guest rooms are air conditioned. The coffee shop and restaurant space has been enlarged. Those coming by automobile from the south and west will find it easy to approach with a minimum of city traffic since the exit from the Lincoln Tunnel is nearby. The approach from the north and east is equally simplified by the exits from the express highway which parallels the Hudson River. The Statler Hilton (extending from 32nd St. to 33rd St.) is directly across 7th Avenue from the Pennsylvania Railroad Terminal. An underground passage leads from the station to the hotel.

The next question will be the availability of rooms and the rates. The con-

vention manager of the Statler Hilton tells me there will be no conflicting convention at the time. Everyone who applies for a room will, I am sure, get just what he desires. Furthermore, the rates will be reasonable.

Mailing of Pre-Conference Information

Because the by-laws provide that notice of certain information be mailed at least sixty days in advance of the annual business meeting of NTA, the mailing to all members will go out not later than the *first of July*, 1960. At that time, you will receive a general covering letter and the following enclosures: *a hotel reservation card, a copy of the preliminary Program, and a letter from Secretary Mattersdorf giving the time and place of the annual meeting of the Association and the nominations submitted to him by the Nominating Committee to be voted upon at that meeting.*

Proceedings of Houston Conference

The preparation of the Proceedings of the Houston Conference is progressing satisfactorily. From reading the material and discussions, I am sure every member will wish to take time to go through this valuable volume. It is hoped that the mailing of the Proceedings to all eligible members will be sometime in May.

Congressional Interest in NTA Publications

At the Executive Committee meeting in Miami Beach, a favorable reply was given to a recent request coming from the Congress of the United States to permit immediate quotations, giving, of course, due credit to the authors and the NTA publication, of any article (complete or in part) appearing therein.

Future Conferences

Please remember the 1961 Conference will be held at the Olympic Hotel in Seattle, Washington, Labor Day week. More on this will reach you later.

Also, at the Executive Committee meeting in Miami Beach, Florida, it was unanimously decided to hold the 1962 Conference at that famous and beautiful location. The hotel and exact time have not been determined. However, Secretary Mattersdorf will be in Miami Beach in late April for a speaking engagement. It is my intention to meet him there. We will carefully survey the hotel situation and report our findings at the next meeting of the Executive Committee, which will probably take place in June in Minneapolis, according to information President Walsh has given me.

European Trips of NTA Executive Committee Members

Last year, Professor Lawrence E. Thompson, Editor of the *National Tax Journal*, and now a member of the Executive Committee, spent the year in Switzerland. He returned and was present at Houston and also at the Miami Beach meeting.

On March 5, Past President H. Kenneth Allen and Mrs. Allen sailed on the *Queen Mary* to be gone several months in England and the Continent.

Another member of our Executive Committee, Professor C. Ward Macy, of the University of Oregon, will leave for Europe in June and return to New York on Labor Day, just in time to attend the NTA Conference.

Availability of Equalization Committee Reports

We still have a supply of the truly excellent report of the NTA Committee on State Equalization of Local Property Tax Assessments. There have been many orders of various sizes filled and mailed to all parts of the country. Please address requests to National Tax Association, 905 Payne-Shoemaker Building, Harrisburg, Pennsylvania. The price is 25¢ per copy in any quantity.

Membership

Several " surprise " memberships on contacts made as long ago as two years have recently come in. This proves that continuous and personal contact is the best way to secure new members. Naturally, I have more time than others to make these contacts but I respectfully urge all of you to take an interest. You know NTA is not hard to sell. Of course, I cannot cover the entire country personally. Therefore, I welcome the aid of enthusiastic and interested members who will participate in this important phase of our organization work.

It is noteworthy that on a recent trip to Baltimore, a long time NTA member, Albert W. Ward (recently made Director of Assessmens and Taxation in Maryland), consented to take over the membership chairmanship in his State.

Among those who have helped in membership efforts, I want to especially mention our President, Walter W. Walsh, Past Presidents Reuther, Allen and Bowers, under whom I have served in my present capacity, as well as Past President Connelly, in whose administration I was appointed to my position in NTA.

Furthermore, Philip S. Robira and Alvin A. Burger, the Texans who so ably chairmaned the Program and Local Arrangements Committees, respectively, at Houston, assure me that there will be a number of additional members in NTA from their great State in the near future. This follows as a direct result of that highly successful Conference last October.

All members can make some contribution in this most important activity by making *personal contacts* (the best way to solicit and secure new members) in their own geographical locations and in their particular membership categories.

PLEASE USE THE ATTACHED CARD

(*It is inserted for your convenience—one side is an application blank, the other is for recommendations*)

If the reverse side of the card is used (to name a prospective member or members) and the same is forwarded to me, I shall be glad to follow up such sponsorships in the best way possible in each instance.

Appreciating your cooperation,

WALTER J. KRESS
Executive Director

NATIONAL TAX ASSOCIATION

Organized 1907—Incorporated 1930

OBJECT. The National Tax Association is a non-political, non-sectarian, and non-profit-making educational organization. Its object, as stated in its certificate of incorporation, is to educate and benefit its members and others by promoting the scientific study of taxation and public finance; by encouraging research; by collecting, preserving, and diffusing scientific information; by organizing conferences; by appointing committees for the investigation of special problems; by formulating and announcing, through the deliberately expressed opinion of its conferences, the best informed thought and ripest administrative experience available; and by promoting better understanding of the common interests of national, state, and local governments in the United States and elsewhere, in matters of taxation and public finance and interstate and international comity in taxation.

MEMBERSHIPS. The Association welcomes to its membership, for mutual discussion and deliberation, all who may be interested in taxation and public finance generally. Annual dues are: memberships for students in recognized institutions of higher learning, $10; memberships for government agencies, schools, and persons receiving more than one-half of their income from employment by such agencies or schools, $10; memberships for other individuals and unincorporated entities, $25; corporate memberships, $100; persons wishing to contribute more liberally to the support of the Association, $100 to $1000.

PUBLICATIONS. The NATIONAL TAX JOURNAL is published quarterly in March, June, September, and December. PROCEEDINGS of the annual conferences on taxation which are sponsored by the Association are published soon after the meetings. The JOURNAL and the PROCEEDINGS are sent to members without charge. To non-members the price of the JOURNAL is $5.00 per year, single numbers, $1.50. The prices of the PROCEEDINGS vary; that of the 1958 volume is $12.00.

Applications for membership, orders for publications, and general inquiries should be addressed to Walter J. Kress, Executive Director, National Tax Association, 905 Payne-Shoemaker Building, Harrisburg, Pennsylvania.

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